Preliminary Engineering Report (PER)

SR-9/I-95 at SR-842/Broward Boulevard Interchange (Broward Boulevard from West of SW 24th Avenue to East of NW/SW 18th Avenue) Project Development & Environment (PD&E) Study

Efficient Transportation Decision Making (ETDM) No.: 14226

Broward County, Florida
Financial Project ID Number: 435513-1-22-02

Prepared for:
Florida Department of Transportation, District Four
3400 West Commercial Boulevard
Fort Lauderdale, FL 33309

November 2019

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried out by FDOT pursuant to 23 U.S.C. §327 and a Memorandum of Understanding dated December 14, 2016, and executed by FHWA and FDOT.

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PRELIMINARY ENGINEERING REPORT

Florida Department of Transportation

District IV

SR-9/I-95 at SR-842/Broward Boulevard Interchange

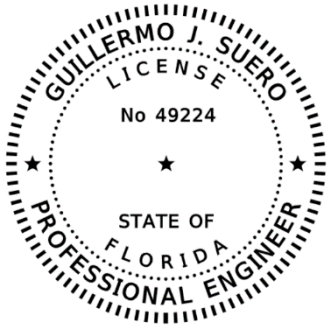
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Abbreviations

AADT	Average Annual Daily Traffic
AASHTO	American Association of State Highway and Transportation Officials
ADA	American with Disabilities Act
AMS	Arterial Management Services
APE	Area of Potential Effect
ATMS	Advanced Transportation Management Systems
ATS	Automatic Transfer Switches
ATSC	Adaptive Traffic Signal Control
BCT	Broward County Transit
BDR	Bridge Development Report
BHP	Borehole Permeability Tests
BMAP	Basin Management Action Plan
BTTS	Bluetooth Travel Time System
CARS	Crash Analysis Reporting System
CCTV	Closed Circuit Television
CD	Collector-Distributor
CDR	Concept Development Report
CFR	Code of Federal Regulation
CNEs	Common Noise Environments
CRA	Community Redevelopment Agency
DMS	Dynamic Messaging Signs
DOA	Determination of Applicability
EB	Eastbound
EFH	Essential Fish Habitat

EL	Express Lanes
EPA	United States Environmental Protection Agency
ESA	Endangered Species Act
ETDM	Efficient Transportation Decision Making
FDEP	Florida Department of Environmental Protection
FDM	FDOT Florida Design Manual (2018)
FDOT	Florida Department of Transportation
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FO	Fiber Optic
FOC	Fiber Optic Cable
FPID	Financial Project Identification Number
FWC	Florida Fish and Wildlife Commission
FWRA	Food Waste Reduction Alliance
GP	General Purpose
HD	High Definition
HOA	Homeowner's Association
HOV	High Occupancy Vehicles
ID	Identification
IOAR	Interchange Operational Analysis Report
ITS	Intelligent Transportation System
LDCA	Location and Design Concept Acceptance
LHR	Location Hydraulic Report
LOS	Level of Service
LFR	Load Factor and Resistance

LRE	Long Range Estimate
MDT	Miami-Dade Transit
MLOU	Methodology Letter of Understanding
MOEs	Measures of Effectiveness
MP	Milepost
mph	miles per hour
MPO	Metropolitan Planning Organization
MSE	Mechanically Stabilized Earth
MVDS	Microwave Vehicle Detection System
NAC	Noise Abatement Criteria
NAVD	North American Vertical Datum
NB	Northbound
NBI	National Bridge Inventory
NE	Northeast
NEPA	National Environmental Policy Act
NFHL	National Flood Hazard Layer
NGVD	National Geodetic Vertical Datum
NHS	National Highways System
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NRCS	Natural Resources Conservation Service
NRE	Natural Resources Evaluation
NSR	Noise Study Report
NW	Northwest
O-D	Origin - Destination

OEM	Office of Environmental Management
OWJ	Official with Jurisdiction
PD&E	Project Development and Environment Study
PPM	Plans Preparation Manual
PSC	Prestressed Concrete
PTZ	Pan-Tilt-Zoom
RSS	Ramp Signaling System
RSC	Ramp Signal Cabinets
RTMC	Regional Transportation Management Centers
SB	Southbound
S-DMS	Lane Status Dynamic Messaging Sign
SE	Southeast
SERPM	Southeast Florida Regional Planning Model
SFRC	South Florida Rail Corridor
SFRTA	South Florida Regional Transportation Authority
SFWMD	South Florida Water Management District
SHGWT	Seasonal High Groundwater Table
SHPO	State Historic Preservation Office
SIMR	Systems Interchange Modification Report
SIS	Strategic Intermodal System
SR	State Road
SW	Southwest
SWEPT	Statewide Environmental Project Tracker
T-DMS	Toll Amount Dynamic Messaging Sign
TMDL	Total Maximum Daily Load

TSM&O	Transportation Systems Management and Operations
US-	U.S. Route or U.S. Highway
USACE	United States Army Corps of Engineers
USCG	United States Coast Guard
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
vpd	vehicles per day
VoIP	Voice over Internet Protocol
WAP	Wireless Access Points
WB	Westbound
WBID	Water body Identification

1.0 Project Summary

1.1 Project Description

The Interchange of I-95 at Broward Boulevard is located in central Broward County in the City of Fort Lauderdale. The South Florida Rail Corridor (SFRC)/CSX Railroad is adjacent to and runs parallel along the west side of I-95 in this area. The limits of this project extend from just south of Davie Boulevard to just south of Sunrise Boulevard, a distance of approximately two miles, along I-95 and from NW 24th Avenue to east of NW/SW 18th Avenue along Broward Boulevard, a distance of approximately one half mile. The study limits are depicted in the project location map above.

The typical section of I-95 within the study area varies. From the Davie Boulevard interchange to SW 5th Place the typical section of I-95 is an eight-lane facility comprised of three General Purpose (GP) Lanes in each direction and one Special Use Lane (previously designated for High Occupancy Vehicle (HOV) use and in transition to dual express lanes under the 95 Express project; the typical section under construction includes a 10-lane facility of which there are 3 GP lanes and 2 express lanes) in each direction. From the vicinity of SW 5th Place, where the northbound (NB) Collector-Distributor (CD) road ramp system merges traffic from I-595 into the GP Lanes, and through to the Sunrise Boulevard interchange, I-95 is a 10-lane facility comprised of four GP Lanes in each direction and one Special Use Lane in each direction (same condition as noted above). Southbound (SB) ingress to I-95 from Broward Boulevard is provided at the western intersection with I-95 ramps by a single lane access right turn lane from eastbound (EB) Broward Boulevard and a double left turn lane from westbound (WB) Broward Boulevard. Egress from southbound I-95 to Broward Boulevard is provided by a ramp with a single right turn lane for traffic heading west on Broward Boulevard and a double left turn lane for traffic heading east on Broward Boulevard.

95 Express Phase 3A-1 will extend the existing express lanes north from just south of Broward Boulevard to just north of Commercial Boulevard in Broward County. One lane will be added and the former HOV lane will be converted to create two express lanes in each direction. This project includes ramp signalization from Hallandale Beach Boulevard to Commercial Boulevard. Other work includes: installing Intelligent Transportation System (ITS) and tolling equipment; widening bridges; and installing noise barrier walls at various locations including this study area along I-95 Southbound between Broward Boulevard and NW 6th Street. Contract time for this $149 million project began Monday, October 4, 2015, with design activities currently underway. Construction began August 21, 2016, and is expected to be completed Fall 2020.

Currently, northbound ingress to I-95 from Broward Boulevard is provided by a single lane access ramp from westbound Broward Boulevard at the eastern intersection with the I-95 ramps and a single lane flyover from eastbound Broward Boulevard west of the western intersection with the I-95 ramps. Egress to Broward Boulevard from northbound I-95 is part of the northbound CD road ramp system, that was recently reconstructed to include triple right turn lanes for traffic heading eastbound on Broward Boulevard and double left turn lanes for traffic heading westbound on Broward Boulevard Additional ingress and egress to and from I-95 is provided through the Park-and-Ride lot in the southwest and northwest quadrants of the interchange.

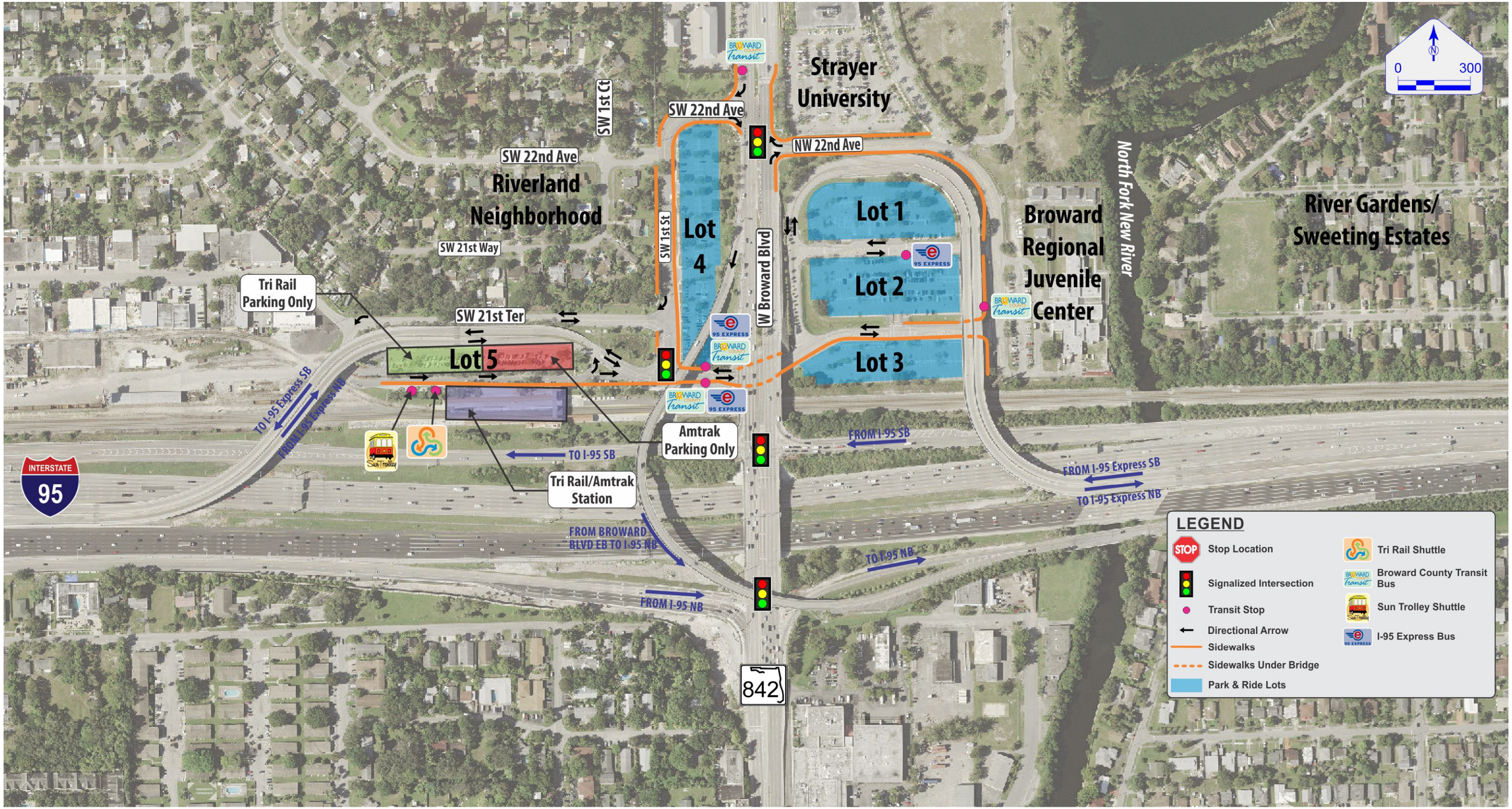
SR-842/Broward Boulevard is a six-lane urban divided roadway with a raised median within the vicinity of the I-95 Interchange. In its current configuration there are no bicycle lanes. Seven-foot wide

sidewalks are provided on both sides of Broward Boulevard between NW/SW 22nd Avenue and NW/SW 18th Avenue. West of NW/SW 22nd Avenue, the sidewalks are seven feet in the westbound direction and six feet in the eastbound direction. Broward Boulevard provides the main entry way to the downtown Fort Lauderdale Central Business District from I-95 and the east-west connection between US-1 and SR-817/University Drive in the City of Plantation.

There are a number of transit options within the operating area of the I-95 at Broward Boulevard Interchange that provide direct service and transfer connections along the north-south and east-west corridors. These include passenger rail services (Tri-Rail and Amtrak) and bus services (Broward County Transit (BCT), Sun Trolley, 95 Express Bus, and the Tri-Rail Commuter Connector shuttle service). There is a Park-and-Ride lot located within the interchange area on the southwest and northwest quadrants. The existing conditions at the Park-and-Ride lot include the provision of 794 parking spaces throughout five parking lots. Spaces in Lot 5 are designated for Amtrak and Tri-Rail parking only while the spaces in Lots 1-4 are available for any purpose, including car pools and 95 Express Bus, shown in **Figure 1-1**. There are no designated bicycle facilities within the Park-and-Ride lot and minimal sidewalk facilities. Access to the Park-and-Ride lots is provided via Broward Boulevard and I-95. Ingress from eastbound Broward Boulevard is provided via a left turn lane at NW 24th Avenue and via a right turn lane at SW 22nd Avenue/SW 1st Street. Ingress from westbound Broward Boulevard is provided via right turn lanes at NW 22nd Avenue and NW 24th Avenue. Egress to westbound Broward Boulevard is provided via the intersections with NW 22nd Avenue and NW 24th Avenue, requiring drivers coming from the south to circulate through the northern parking areas. Egress to eastbound Broward Boulevard is provided via SW 22nd Avenue/SW 1st Street and NW 24th Avenue. Ingress from both northbound and southbound I-95 are provided in a similar manner with northbound vehicles exiting on the south side of Broward Boulevard and merging into SW 21st Terrace and southbound vehicles exiting on the north side of Broward Boulevard with connections to NW 22nd Avenue and SW 22nd Avenue / SW 1st Street provided via access roads within the parking areas. Egress to southbound I-95 is provided on the south side of Broward Boulevard via a ramp that crosses over the southbound General Use Lanes of I-95 and connects to the southbound former HOV lane. Egress to northbound I-95 is provided by a direct connect flyover ramp on the north side of Broward Boulevard, accessed from the northern parking area, which crosses over the southbound General Use Lanes of I-95 and connects to the northbound former HOV lane. Broward Boulevard's elevation over I-95 creates vertical access challenges for transit users, bicyclists and pedestrians looking to connect with the transit services available in the Park-and-Ride and Transit Station area northwest and southwest of the interchange. Broward Boulevard is elevated over I-95, transit users that are serviced on Broward Boulevard that need to make transit connections in the Park-and-Ride lots or the Fort Lauderdale Train station (Amtrak and Tri-Rail service) below need to walk a considerable distance on either NW or SW 22nd Avenue to access these services. As a result of these challenges and due to its location as the entry way to downtown Fort Lauderdale, this interchange has been the subject of a variety of studies including the City of Fort Lauderdale's Gateway Vision and FDOT's Broward Boulevard Transit Corridor Study.

Each of these studies has evaluated these challenges and recommended multimodal interconnectivity improvements on the west side of the interchange where connections to Tri-Rail and the 95 Express Bus services are offered. These prior studies and recommendations were considered as the alternatives were developed during this study. The 95 Express project mainline improvements under construction at the time of this PD&E Study add one additional Special Use Lane in each direction and modify the use of these lanes to include dual express lanes. The resulting typical section becomes a 12-lane facility comprised of four GP Lanes and two Special Use Lanes in each direction.

Figure 1-1 | Existing Park-and-Ride Conditions



1.2 Purpose and Need

The primary purpose of this project is to improve system linkage, traffic operations, and modal interrelationships at the I-95 and Broward Boulevard Interchange. Additional goals of this project are to address capacity, safety, travel demands, and emergency evacuation.

Broward Boulevard is a State Road (SR 842) that provides the main entryway to the downtown Fort Lauderdale Central Business District from I-95. The sections of Broward Boulevard from I-95 to NE 3rd Avenue and north and south of Broward Boulevard on I-95 are part of the state's Strategic Intermodal System (SIS), which consists of high-priority transportation facilities and services of statewide and interregional significance and are critical to the movement of people and goods in Florida. The existing links throughout the system in the study area need improvements based on forecasted traffic demands resulting from regional population growth and employment growth. Currently, the 95 Express Lanes do not directly connect to Broward Boulevard.

Proposed improvements will need to complement the 95 Express Lanes by enhancing existing connectivity within the Park-and-Ride lots, improve existing I-95/Broward Boulevard intersections with the I-95 ramps, and provide improved Express Lane access to Broward Boulevard.

Transit services along Broward Boulevard, 95 Express, and within the Park-and-Ride Lot/Transit Station areas are currently experiencing recurring congestion that reduces transit vehicle speeds, increases operating costs, and makes scheduling of buses from a system level challenging. The existing geometry and operational features do not allow optimal bus travel times, multimodal connectivity, or access to bus stops and transfers. The purpose of this study is to address these transit needs.

I-95 within the project limits currently operates at Level of Service (LOS) F. Broward Boulevard within the project limits also operates at LOS F. Without improvements, the driving conditions will continue to operate well below acceptable LOS targets into the future. Congestion on these routes also impact emergency evacuations.

This study will address multimodal and safety needs such as the lack of sufficient bicycle and pedestrian facilities on Broward Boulevard and along SW 1st Street. In addition, the study will address safety concerns that are generated by the at grade weave condition that currently exists between the Sunrise Boulevard and Broward Boulevard interchanges from 95 Express traffic. 95 Express traffic will also be circulating through a low speed Park-and-Ride lot which poses potential pedestrian conflicts.

1.3 Commitments

1. FDOT commits to provide landscaping as a buffer from the neighborhood on the east side (south of NW 6th Street) for the braided ramp connecting to the Northbound 95 Express Lane from Broward Boulevard.
2. FDOT commits during the final design phase to continue to solicit input and feedback from stakeholders regarding the beautification of the entrance to the City of Fort Lauderdale.
3. FDOT commits to the following construction conditions relating to the Sea Turtle and the Smalltooth Sawfish:

a) The permittee shall instruct all personnel associated with the project of the potential presence of these species and the need to avoid collisions with sea turtles and smalltooth sawfish. All construction personnel are responsible for observing water-related activities for the presence of these species.
b) The permittee shall advise all construction personnel that there are civil and criminal penalties for harming, harassing, or killing sea turtles or smalltooth sawfish, which are protected under the Endangered Species Act of 1973.
c) Siltation barriers shall be made of material in which a sea turtle or smalltooth sawfish cannot become entangled, be properly secured, and be regularly monitored to avoid protected species entrapment. Barriers may not block sea turtle or smalltooth sawfish entry to or exit from designated critical habitat without prior agreement from the National Marine Fisheries Service's Protected Resources Division, St. Petersburg, Florida.
d) All vessels associated with the construction project shall operate at "no wake/idle" speeds at all times while in the construction area and while in water depths where the draft of the vessel provides less than a four-foot clearance from the bottom. All vessels will preferentially follow deep-water routes (e.g., marked channels) whenever possible.
e) If a sea turtle or smalltooth sawfish is seen within 100 yards of the active daily construction/dredging operation or vessel movement, all appropriate precautions shall be implemented to ensure its protection. These precautions shall include cessation of operation of any moving equipment closer than 50 feet of a sea turtle or smalltooth sawfish. Operation of any mechanical construction equipment shall cease immediately if a sea turtle or smalltooth sawfish is seen within a 50-ft radius of the equipment. Activities may not resume until the protected species has departed the project area of its own volition.
f) Any collision with and/or injury to a sea turtle or smalltooth sawfish shall be reported immediately to the National Marine Fisheries Service's Protected Resources Division (727-824-5312) and the local authorized sea turtle stranding/rescue organization.
g) Any special construction conditions, required of your specific project, outside these general conditions, if applicable, will be addressed in the primary consultation.

4. The FDOT will implement the most current versions of the following protection measures which will be included in the construction documents and implemented during construction: The Florida Fish and Wildlife Conservation Commission (FWC) Standard Manatee Conditions for In-Water Work and the US Fish and Wildlife Service (USFWS) Standard Protection Measures of the Eastern Indigo Snake.
5. FDOT commits to invite the City of Fort Lauderdale to participate and assist in the public notification of the Public Hearing during the Design Phase for the eastbound SW 1st Street Right-In/Right-Out modification at the SW 22nd Avenue and SW 1st Street Intersection.

1.4 Preferred Alternative

The study's Preferred Alternative includes:

- A series of new flyover ramps to allow ingress and egress between the 95 Express Lanes and Broward Boulevard, for both the north- and southbound directions, with the exception of the

continued use of the existing former HOV ramps for the eastbound Broward Boulevard to Southbound 95 Express;

- Replacement of the Broward Boulevard bridge segment that spans I-95 with a wider bridge segment to allow for additional turn lanes and bicycle and pedestrian improvements;

- Replacement of the Broward Boulevard bridge segment that spans the SFRC with a wider bridge segment to allow for additional turn lanes, bicycle and pedestrian improvements, and an envelope for a potential future premium transit stop in the median of Broward Boulevard. The transit stop could provide vertical connectivity between east/west transit on Broward Boulevard and the Park-and-Ride Lot/Transit Station below as well as the Ft. Lauderdale Train Station by allowing transit users to access the level below Broward Boulevard through the median on the bridge;
- Reconstruction of the southbound GP Lanes exit ramp to accommodate additional turn lanes and storage;
- Reconstruction of the northbound GP Lanes exit ramp to accommodate additional storage;
- Displacement of northbound exit ramp traffic heading west onto a new bridge;
- Improvements to the Park-and-Ride Lot to allow for improved circulation for vehicles, transit modes, and pedestrians; and
- Modification to SW 1st Street eastbound at SW 22nd Avenue, converting the access point to allow for eastbound Right In/Right-Out traffic movements only.

2.0 Existing Conditions

2.1 Existing Roadway Conditions

2.1.1 Typical Section

From the Davie Boulevard interchange to SW 5th Place (Pl.) the typical section of I-95 is a 10-lane facility comprised of 3-12' GP Lanes (0.02 cross slope for the two inside lanes, 0.03 cross slope for the outside lane) and 2-11' Special Use Lanes (0.02 cross slope towards the inside) with a 2' buffer in each direction, varied width (3-10')' inside shoulders (0.06 cross slope), and varied width (10'-13.5') outside shoulders (0.06 cross slope) along northbound I-95, and varied width (6.5'-10') inside shoulders and 12' outside shoulders (0.06 cross slope) along southbound I-95, and a varied width (2'-16') median. From the vicinity of SW 5th Place, where the northbound CD road ramp system merges traffic from I-595 into the GP Lanes, to NW 6th Street/Sistrunk Boulevard, I-95 is a 12-lane facility comprised of 4-12' GP Lanes and 2-11' Special Use Lanes with a varied width (2'-4') buffer, varied width (0'-12') auxiliary lanes in each direction, varied width (6'-12') inside shoulders along northbound I-95, varied width (5'-12') inside shoulders along southbound I-95, and varied width (8'-12') outside shoulders in each direction, and a varied width (2.5'-70.5') median. From the vicinity of NW 6th Street/Sistrunk Boulevard, and through to the Sunrise Boulevard interchange, I-95 is a 12-lane facility comprised of 4-12' GP Lanes and 2-11' Special Use Lanes with a varied width (2'-4') buffer, and varied width (0'-12') auxiliary lanes, varied width (5'-12') inside and 12' outside shoulders, and a 2.5' median. The typical section illustrated in **Figure 2-1** reflects the proposed I-95 conditions that will be in place prior to construction of the I-95 Broward Boulevard PD&E improvements. Essentially the typical section below reflects the future existing

conditions that will be in place prior to construction of the preferred alternative improvements from this PD&E Study.

SR-842/Broward Boulevard is a six-lane divided roadway with three varied width (11'-12') lanes in each direction, 0.02 cross slope for the two inside lanes, and 0.03 cross slope for the outside lane, curb & gutter, 6'-8' wide sidewalks, and raised varied width (7'-28') median. The roadway is illustrated in **Figure 2-2**. There are two bridges along Broward Boulevard The first bridge spans over SW 21st Terrace and the railroad corridor and the second bridge spans over I-95, as outlined in **Figure 2-3** and **Figure 2-4**. The bridge over SW 21st Terrace and the railroad corridor has three through lanes and an auxiliary lane in each direction, raised sidewalk, and raised median. The bridge over I-95 has three through lanes in each direction, two left turn lanes in the westbound direction, raised sidewalk, and a traffic separator.

Figure 2-1 | Typical Section – I-95

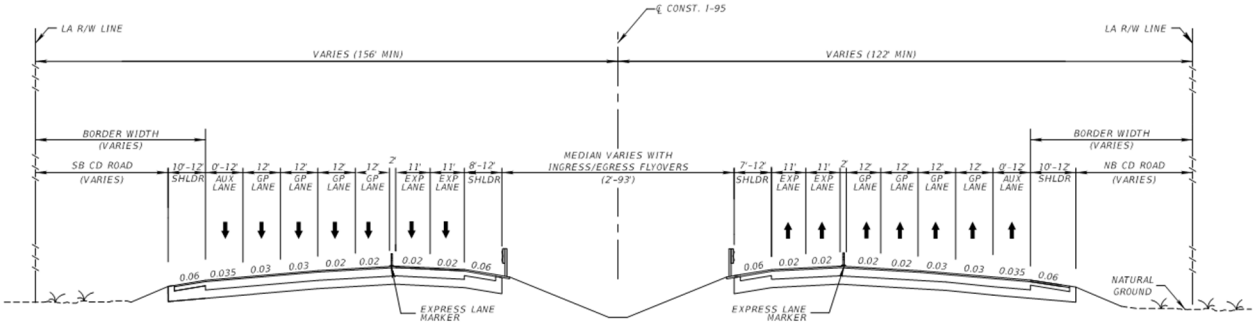


Figure 2-2 | Typical Section – Broward Boulevard

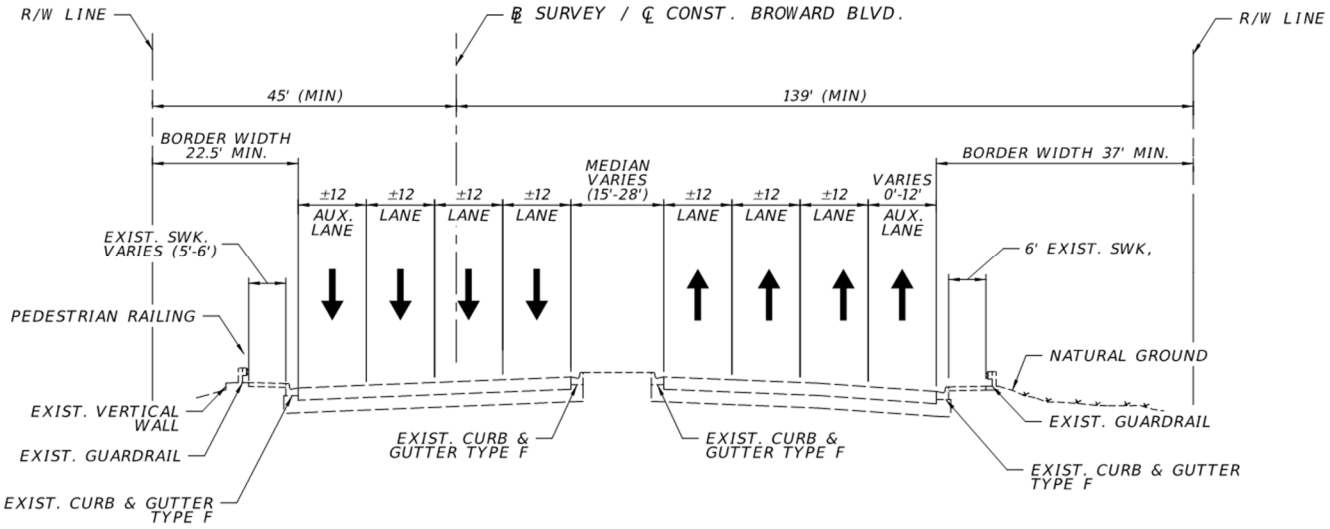


Figure 2-3 | Typical Section – Broward Boulevard Bridge Over SW 21st Terrace and Railroad

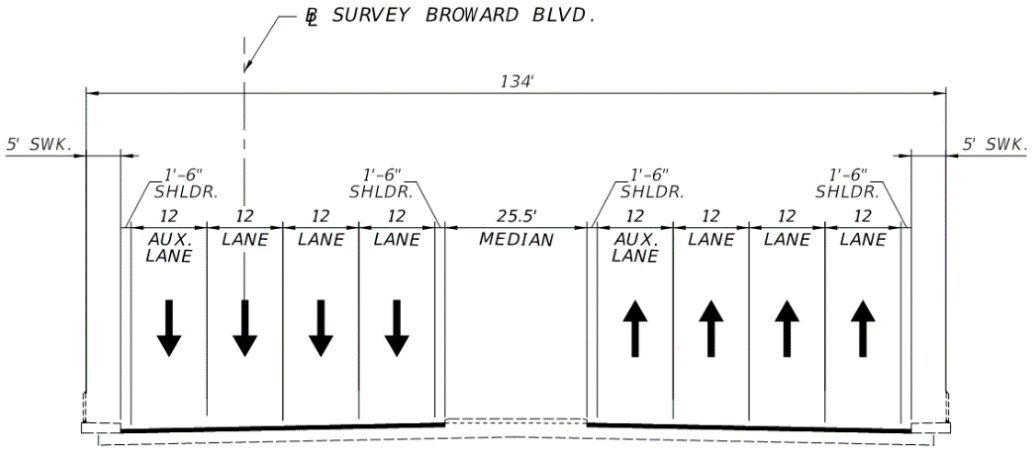
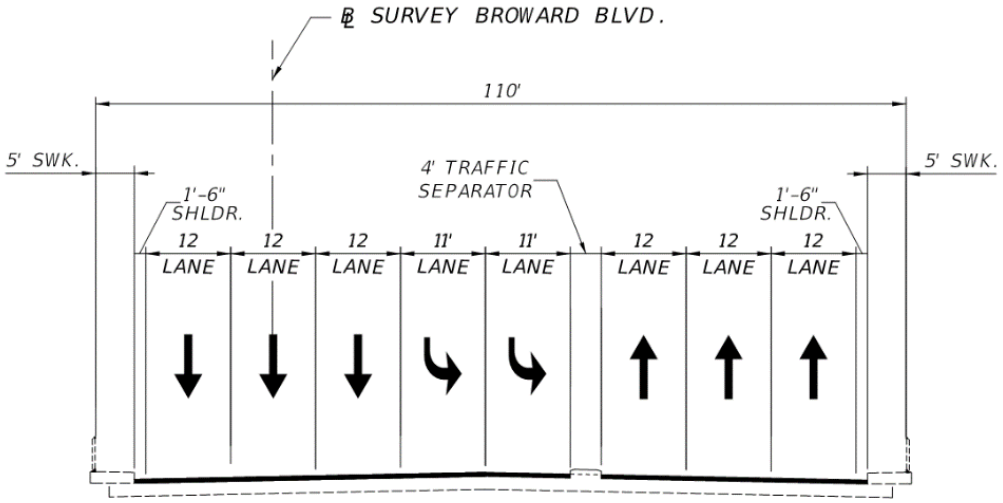


Figure 2-4 | Typical Section – Broward Boulevard Bridge Over I-95



2.1.2 Roadway Classification

The FDOT classifies roadways according to the nature and character of their uses. Functional Classification defines the role that a particular roadway plays in serving the flow of vehicular traffic through the network. The functional classification of I-95 (86070000) is that of an Urban Interstate that serves as a major north/south mode of transportation for Broward County. I-95 is also designated as an SIS corridor, which is part of a statewide network of high priority transportation facilities that are critical to Florida's economic competitiveness, and on the National Highway System.

The Access Management classification of I-95 is Access Class 1 (Limited Access).

The functional classification of SR-842/Broward Boulevard (86006000) is that of an Urban Principal Arterial that serves as the main entry way to the downtown Fort Lauderdale Central Business District from I-95 and the east/west connection between US-1 and SR-817/University Drive in the City of Plantation.

The Access Management classification of Broward Boulevard is Access Class 5 (Restrictive).

The FDOT Context Classification in combination with Transportation Characteristics of a roadway will determine key design criteria for all non-limited-access state roadways. The Context Classification system describes the general characteristics of the land use, development patterns, and roadway connectivity, providing cues as to the types of uses and user groups that will likely utilize the roadway. The Transportation Characteristics define the type of access the roadway provides, the types of trips served, and the users served. The Context Classification designation for Broward Boulevard is C4-Urban General.

2.1.3 Vertical Alignment

The vertical profile of I-95 was obtained from the Financial Project Identification Number (FPID) 433108-4-52-01 plans. Within the limits of the study, the northbound I-95 profile slopes downward to a low point with an elevation of approximately 15.3' as it passes underneath David Boulevard, and continues with upward and downward changes between approximate elevations of 17.5' and 7.4', respectively, before passing under the Broward Boulevard Bridge at an approximate elevation of 8.5' along the northbound lanes, and 9.0' along the southbound lanes. North of Broward Boulevard the I-95 profile rises to reach an approximate elevation of 30' and flattens to a 0% grade to and through the bridge over NW 6th Street before transitioning to downward slope from (-) 1.45% to (-) 2.12% then transitions with a vertical curve to 0.005% to and through the north study limits.

The vertical profile of Broward Boulevard was obtained from FPID 22714-1-52-01 and FPID 429958-1-52-01 plans. Within the limits of the study, the Broward Boulevard profile slopes slightly downward to a low point about 250' east of SW 24th Avenue, from this point the profile rises 5.0% as it passes over the SFRC and I-95 and transitions with a vertical curve to (-) 4.0%, flattening out to an approximate 0.30% to and through the east study limits.

2.1.4 Horizontal Alignment

The existing geometry of Broward Boulevard is linear between SW 24th Avenue and a point just east of I-95 where it deflects approximately 0º00'39" this 138' segment is followed by another segment with a deflection of approximately 0º00'24". Then a curve of approximately 3,245' radius follows to and through the study limits. **Table 2–1** provides a summary of the existing horizontal alignment data.

Table 2-1 | Horizontal Alignment: Broward Boulevard

Curve No.	Existing Curve Parameters				Design Criteria	
	Design Speed (MPH)	Radius (Feet)	Super-elevation (e)	Length (Feet)	FDM (Length)	FDM (e)
1	45	3245.00	NC	349.55	400	NC

The existing geometry of the northbound side of I-95 within the proposed improvement limits follows a reverse curve of approximately 34,900' and 22,900' radii respectively. The last curve is followed by another curve in the same direction of about 22,900' radius. Then a tangent section followed by a curve of approximately 29,900' radius. The curve is followed by three tangent sections with deflections of approximately (-) 0°44'52", and (-) 0°1'48" respectively. These sections are followed by a compound curve of approximately 11,000', 30,000', and 20,000' respectively. Then a tangent section is followed by another compound curve of approximately 13,900' and 11,400' respectively. The last section to and through the study limits consists of 5 tangent sections with deflections of approximately 0°30'00", 0°55'37", (-) 0°55'37", and 0°07'39" respectively. **Table 2–2** provides a summary of the existing horizontal alignment data.

Table 2-2 | Horizontal Alignment: I-95 NB

Curve No.	Existing Curve Parameters				Design Criteria	
crowned beteween GP and EL	Design Speed (MPH)	Radius (Feet)	Super-elevation (e)	Length (Feet)	FDM (Length)	FDM (e)
14	65	34903.74	NC (GP) 0.03 (EL)	229.97	400	NC
15	65	22954.08	NC (GP) 0.02 to 0.026 (EL)	1737.66	400	NC
16	65	22953.62	NC	353.25	400	NC
1-4	65	29976.00	NC	1136.82	400	NC
1-5	65	11024.00	RC (GP) NC (EL)	742.07	400	RC
1-6	65	30024.00	RC to NC (GP) NC (EL)	622.38	400	NC
1-7	65	20023.98	NC (GP) RC (EL)	733.84	400	NC
1-8	65	13983.00	NC (GP) 0.02 to 0.025 (EL)	719.23	400	RC
1-9	65	11433.16	(-) 0.02 to (-) 0.03 (GP) 0.02 to (-) 0.02 (EL)	648.62	400	RC

The existing geometry of the southbound side of I-95 within the proposed improvement limits follows a compound curve of approximately 7,800' and 11,700' radii respectively. Then a tangent section is followed by a curve of approximately 5,600' radius. There are two tangent sections with a deflection of (-) 0°45'00" between them, followed by a curve of approximately 7,500' radius. The last section to and through the study limits consists of eight tangent sections with deflections of approximately 0°06'33", (-) 0°06'33", (-) 0°06'33", 0°06'22", (-) 0°44'58", 0°45'08", and 0°44'51" respectively. **Table 2–3** provides a summary of the existing horizontal alignment data.

Table 2-3 | Horizontal Alignment: I-95 SB

Curve No.	Existing Curve Parameters				Design Criteria	
crowned beteween GP and EL	Design Speed (MPH)	Radius (Feet)	Super-elevation (e)	Length (Feet)	FDM (Length)	FDM (e)
3	65	7815.00	0.025 to 0.03 (GP) (-) 0.03 (EL)	878.61	400	0.025
4	65	11722.00	0.025 to 0.03 (GP) (-) 0.03 (EL)	307.42	400	RC
5	65	5653.00	(-) 0.037 (GP) 0.037 (EL)	843.57	400	0.034
6	65	7550.00	(-) 0.02 to (+) 0.03 (GP) (-) 0.02 to (-) 0.03 (EL)	728.63	400	0.025

2.2 Existing ITS Conditions

The existing ITS devices within the study limits on I-95, Broward Boulevard, and the Broward Boulevard Park-and-Ride facility are currently operated, monitored, and managed from the FDOT District Four Regional Transportation Management Centers (RTMC) using the SunGuide software to control and monitor the existing ITS devices. Prior to the opening of the I-95 Express Lanes Phase 3A-1 project, District Six of FDOT will operate the existing toll amount Dynamic Messaging Signs (T-DMS), lane status DMS (S-DMS) and the closed circuit television (CCTV) cameras that are dedicated to those T-DMS and S-DMS within the study area, however all ITS devices are maintained by District Four. District Four operates all other ITS devices within the study area, however upon final acceptance of the I-95 Express Lanes Phase 3A-1 project the District Four RTMC is expected to take over the operations of all ITS devices. Because of this, it is assumed that the FDOT District Four RTMC will operate all of the ITS devices within the study area. A separate Arterial Management Services (AMS) contract operates, manages, and maintains the ITS devices on Broward Boulevard however this is also done out of the FDOT District Four RTMC. The following is a description of all the existing ITS devices within the study area and the potential impacts on them for the proposed improvements as part of the Preferred Alternative. Note that the ITS devices on I-95 and in the Broward Boulevard Park-and-Ride described below are the devices that are to be installed/included as part of the I-95 Express Lanes Phase 3A-1 project.

2.2.1 I-95 ITS Devices

Pan-Tilt-Zoom (PTZ) CCTV cameras: Within the study limits, the District Four RTMC operates twelve (12) CCTV cameras along I-95. It is anticipated that each of these camera locations would be affected by the Preferred Alternative and most likely require relocation or replacement.

Microwave Vehicle Detection System (MVDS): Within the study limits, the District Four RTMC operates seventeen (17) MVDS along I-95. It is anticipated that each of these MVDS locations would be affected by the Preferred Alternative and most likely require relocation or replacement.

Dynamic Messaging Signs (DMS): Within the study limits, the District Four RTMC operates three (3) freeway DMS, one (1) S-DMS, and one (1) arterial DMS on Broward Boulevard used for the freeway operations. The overhead structures would need to be relocated due to the widening of the I-95 mainline and Broward Boulevard.

Wireless Access Points (WAP): Within the study limits, the District Four RTMC operates seven (7) WAPs along I-95. With the exception of three (3) WAP that are located on one ITS pole near Broward Boulevard, the other four (4) WAP either share a pole with a CCTV camera or MVDS. It is anticipated that each of these WAP locations would be affected by the Preferred Alternative and most likely require relocation.

Voice over Internet Protocol (VoIP) antennas: Within the study limits, the District Four RTMC operates two (2) VoIP antennas along I-95. These VoIP antennas are located on existing CCTV poles or MVDS poles throughout the study limits. These VoIP antennas are no longer utilized by the Department and do not have to be relocated. They can be returned to the Department upon removal.

Ramp Signaling System (RSS): Within the study limits, the District Four RTMC operates three (3) RSS sites along I-95. The RSS consists of several components which include loop detectors, (ramp queue loop, demand loop, and passage loop), flashing beacons, ramp signal heads, and ramp signal cabinets (RSC). The following components are anticipated to be affected by the Recommend Alternative and will most likely require relocation:

- Broward Boulevard SB entrance ramp to I-95 (one lane entrance ramp):
 - the RSC,
 - one (1) flashing beacon
- Broward Boulevard NB entrance ramp to I-95 (two lane entrance ramp):
 - one (1) flashing beacon for the EB to NB movement,
 - one (1) flashing beacon for the WB to NB movement,
 - two (2) ramp queue loop detectors from the WB to NB movement,
 - four (4) demand loop detectors
 - four (4) passage loop detectors
 - the RSC,
 - four (4) ramp signal heads on two (2) pole assemblies
- Sunrise Boulevard SB entrance ramp to I-95 (one lane entrance ramp):

- two (2) demand loop detectors
- two (2) passage loop detectors
- the RSC,
- two (2) ramp signal heads on one (1) pole assembly

Fiber Optic Communication System: Fiber Optic (FO) infrastructure is already in place for the currently deployed ITS equipment. FDOT has two (2) one hundred forty-four (144) strand FO cables and one seventy-two (72) strand FO cable (for shared AMS/Broward County) FO backbones along the I-95 study limits. FDOT typically provides an FO connection to their CCTV cameras, MVDS sensors, DMSs, and other ITS devices. The current FO backbones and conduits will have to be relocated or replaced as part of the modified locations to the ITS system.

2.2.2 Broward Boulevard ITS Devices

Pan-Tilt-Zoom (PTZ) CCTV cameras: Within the study limits, the District Four RTMC AMS team operates a total of three (3) CCTV cameras, two (2) of which are along Broward Boulevard and one (1) within the Broward Boulevard Park-and-Ride. It is anticipated that the two (2) camera locations along Broward Boulevard would be affected by the Preferred Alternative and most likely require relocation or replacement.

Microwave Vehicle Detection System (MVDS): Within the study limits, the District Four RTMC AMS team operates one (1) MVDS along Broward Boulevard. It is anticipated that this MVDS location would be affected by the Preferred Alternative and most likely require relocation or replacement.

Bluetooth Travel Time System (BTTS): Within the study limits, the District Four RTMC AMS team operates a total of three (3) BTTS devices, two (2) of which are along Broward Boulevard and one (1) within the Broward Boulevard Park-and-Ride. It is anticipated that the two (2) BTTS device locations along Broward Boulevard would be affected by the Preferred Alternative and most likely require relocation or replacement.

Fiber Optic Communication System: Fiber Optic (FO) infrastructure is already in place for the currently deployed ITS equipment. FDOT has a combination of a twelve (12) strand and ninety-six (96) strand FO backbone along the Broward Boulevard study limits. FDOT typically provides an FO connection to their CCTV cameras, MVDS sensors, DMSs, and other ITS devices. The current FO backbones and conduits will have to be relocated or replaced as part of the modified locations to the ITS system.

2.2.3 Broward Boulevard Park-and-Ride ITS Devices

Pan-Tilt-Zoom (PTZ) CCTV cameras: Within the study limits, the District Four RTMC AMS team operates six (6) CCTV cameras within the Broward Boulevard Park-and-Ride facility. These CCTV are dedicated to the T-DMS within the Park-and-Ride. It is anticipated that three (3) of this camera locations would be affected by the Preferred Alternative and most likely require relocation or replacement.

Dynamic Messaging Signs (DMS): Within the study limits, the District Four RTMC operates twelve (12) T-DMS on six (6) static panels (two T-DMS per static panel) used for the Express Lane operations. Two (2) of the static panels (total of four T-DMS) would be affected by the activities performed in the Park-and-Ride and most likely require relocation or replacement.

Fiber Optic Communication System: Fiber Optic (FO) infrastructure is already in place for the currently deployed ITS equipment. FDOT has a twenty-four (24) strand FO drop cable that is spliced into the one hundred forty-four (144) strand FO backbone along I-95 for these ITS devices within the Park-and-Ride. The current FO drop cable and conduit in the lot to the north of Broward Boulevard would be affected by the activities performed in the Park-and-Ride and most likely require relocation or replacement

2.3 Existing Structure Conditions

There are nineteen existing bridges within the study limits:

1. SB I-95 over SW 6th Street – Bridge No. 860272
2. NB I-95 over SW 6th Street – Bridge No. 860273
3. SB I-95 over North Fork New River – Bridge No. 860270
4. NB I-95 over North Fork New River – Bridge No. 860271
5. SB I-95 to Broward Boulevard Ramp over North Fork New River – Bridge No. 860260
6. SB I-95 to Park and Ride Ramp over SB I-95, Broward Boulevard and Railroad – Bridge No. 860601
7. Park and Ride to NB I-95 Ramp over SB I-95, Broward Boulevard and Railroad – Bridge No. 860628
8. Broward Boulevard to NB I-95 Ramp over North Fork New River – Bridge No. 860602
9. WB Broward Boulevard over Park-and-Ride Access Road and CXS Railroad – Bridge No. 860257
10. EB Broward Boulevard over Park-and-Ride Access Road and CXS Railroad – Bridge No. 860258
11. EB Broward Boulevard to NB I-95 – Bridge No.860598
12. Broward Boulevard over I-95 – Bridge No. 860269
13. Park-and-Ride #2 to SB I-95 Ramp over SB I-95, I-595 Connector and Railroad – Bridge No. 860600
14. Park-and-Ride to NB I-95 Ramp over SB I-95, Broward Boulevard and Railroad – Bridge No. 860638
15. Broward Boulevard to SW I-95 Ramp over SB I-95 ramp to I-595 – Bridge No. 860606
16. NB I-95 to Broward Boulevard over I-595 ramp to NB I-95 – Bridge No. 860607
17. Davie Boulevard over I-95, I-595 Ramp, Railroad and 21th Avenue – Bridge No. 860603
18. SB I-95 Exit Ramp – Bridge No. 860604
19. Davie Boulevard to NB I-95 Ramp – Bridge No. 860605

All nineteen bridges in the study limits have been tested for asbestos and lead paint and none of them tested positive for asbestos-containing materials. Out of the nineteen bridges, ten bridges contain non-hazardous metals. The existing bridge characteristics are summarized in **Table 2–4.**

Table 2-4 | Existing Bridge Characteristics

Bridge Number	860602	860257	860258	860269	860600	860272	860273	860270	860271	860260	860601	860638	860606	860607	860603	860604	860605	860628	860598
Year Built/ Reconstructed	1993	1974/1994	1974	1974	1995	1975/1994	1975/1994	1974/1994	1974/1994	1974/1994	1994	1995	1994	1994	1994	1993	1994	1994	1994
Structure Type	AAHSTO beam	AAHSTO beam	AAHSTO beam	AAHSTO beam	Steel Box	AAHSTO beam	AAHSTO beam	AAHSTO beam	AAHSTO beam	AAHSTO beam	Steel Box	Steel Box	Steel Box	Steel Box	Steel Box	Steel Box	Steel Box	Steel Box	Steel Box
No. of Spans	3	3	3	4	8	3	3	3	5	3	8	7	3	3	8	1	1	9	9
Total Length of Bridge	272 ft	207 ft	222 ft	338.1 ft	1315 ft	188.6	188.6	207 ft	250 ft	195 ft	1315 ft	1345 ft	671.5 ft	567.5 ft	1019 ft	101 ft	121 ft	1275 ft	1458.5
Bridge Width	44.1 ft	95 ft	68.2 ft	112.1 ft	31.1 ft	97	109	95 ft	85.1 ft	45.5 ft	31.1	31.1 ft	29.8 ft	29.8 ft	141.2 ft	57 ft	52.8 ft	31.1 ft	31.1
Year of Last Inspection	2015	2017	2016	2017	2016	2016	2016	2017	2017	2017	2017	2015	2016	2017	2016	2016	2016	2017	2017
Health Index	94.3	99.55	99.34	100	98.6	99.3	99.6	99.5	100	100	58.4	98.8	76.5	97.2	90.1	80.8	93.5	58.43	79.78
Sufficiency Rating	97.9	91	78.4	79	98.1	84.5	84.5	91	90	95.8	99	98.4	97.3	97.5	88	100	98.2	100	96
Controlling NBI Condition	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Very Good	Good
LFR Load Rating Inventory	55.4 tons	42.8 tons	50.2 tons	46.1 tons	34.2 tons	34.3 tons	34.3 tons	42.8 tons	48.6 tons	35.7 tons	43.2 tons	34.2 tons	39.6 tons	58.0 tons	36 tons	50.8 tons	51.1 tons	47.2 tons	31.7 tons
LFR load Rating Operating	87.8 tons	49.3 tons	63.0 tons	76.8 tons	61.9 tons	57.1 tons	57.1 tons	49.3 tons	63.0 tons	59.4 tons	55.8 tons	57.2 tons	65.9 tons	97.2 tons	60.1 tons	84.6 tons	85.3 tons	61.2 tons	52.9 tons
FL-120 Rating	NA	NA	NA	NA	NA	NA	NA	68.4 tons	67.2 tons	NA	55.2 tons	NA	NA	NA	NA	NA	NA	NA	NA
Acceptable Load Rating Based on Widening Y/N	Y	Y	Y	Y	N	N	N	Y	Y	Y	N	N	Y	Y	Y	Y	Y	Y	N
Acceptable Load Rating Based on Remaining Y/N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Existing Min Lateral Clearance	29.8 ft Navigational	29.8 ft Navigational	0 ft	10.2 ft	11.4 ft	11.8 ft	11.8 ft	29.8 ft navigational	29.8 ft navigational	29.8 ft navigational	21 ft	11.4 ft	8.5 ft	7.2 ft	9.8 ft	Not over road/water	Not over road/water	29.8 ft	22.9 ft
Existing Minimum Vertical Clearance (As-Builts)	6.8 ft over water	6.8 ft over water	23.5 ft over RR	16.5 ft over Road	18 ft over Road	16.3 ft	16.3 ft	6.8 feet over water	6.8 feet over water	6.8 feet over water	16.4 ft	18 ft	16.4 ft	16.4 ft	16.5 ft	NA	NA	6.8 ft over water 17.9 over Roadway	16.56 ft
Functionally Obsolete Y/N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Structurally Deficient Y/N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N

NBI – National Bridge Inventory
LFR – Load Factor and Resistance
Structurally Deficient – Per the FDOT, bridge should undergo a series of repairs or replacement within the next six years. The Department's policy is to repair or replace all the structurally deficient state owned bridges during that time.
Functionally Obsolete – Per the FDOT, bridge does not meet current road design standards. For example, some bridges are "functionally obsolete" because they were built at a time when lane widths were narrower than the current standard.

2.3.1 Historical Significance

The historical significance of the existing bridges within the project study area along Broward Boulevard were reviewed to determine if any are considered historic or possess any substantial community value. All the bridges in the study area are not eligible for the National register of Historic Places as they are not more than 50 years old and have mostly been widened. As such, these bridges are either non-historic or have non-historic reconstruction dates.

2.4 Existing Lighting Conditions

Within the limits of the study, along Broward Boulevard, there is existing lighting on both the south and north side of the roadway. Within the study limits along I-95 there is existing lighting in the median, servicing both northbound and southbound lanes of I-95 from Davie Boulevard to the existing former HOV Ramps south of Broward Boulevard. From the existing former HOV ramps south of Broward Boulevard to the existing former HOV ramps north of Broward Boulevard existing lighting is located along the outside of both northbound and southbound I-95 mainline. From the existing former HOV ramps north of Broward Boulevard to and through the study limits, existing lighting is provided in the median of I-95. In addition to the lighting along the mainline of I-95 there is existing lighting along entrance and exit ramps.

2.5 Pedestrian and Bicycle Facilities

Pedestrians are accommodated with six foot wide sidewalks on both sides of Broward Boulevard between NW/SW 22nd Avenue and NW/SW 18th Avenue West of NW/SW 22nd Avenue the sidewalk is eight feet in width. In its current configuration, SR-842/Broward Boulevard has no provisions for bicycle traffic within the limits of NW 24th Avenue to NW 18th Avenue, outside of the general travel lanes. Crosswalks are located along Broward Boulevard on every side street. The only crosswalks available to cross Broward Boulevard are located at SW/NW 24th Avenue and at SW/NW 18th Avenue. This area currently serves as the main entry way to downtown Fort Lauderdale Central Business District from I-95 and the east-west connection between US-1 and SR-817/ University Drive in the City of Plantation.

Currently the elevation of Broward Boulevard over I-95 has created vertical access challenges for transit users, pedestrians, and bicyclists to connect to the Park-and-Ride lot and Transit Station area. Since Broward Boulevard is elevated over I-95, transit users that are serviced on Broward Boulevard and need to make transit connections in the Park-and-Ride lots or the Ft. Lauderdale Train station (Amtrak and Tri-Rail service) below need to walk a considerable distance on either NW or SW 22nd Avenue to access these services. There are also currently no designated bicycle facilities within the Park-and-Ride lot and minimal sidewalk facilities.

2.6 Transit Facilities

Broward Boulevard currently has a variety of transit options that provide direct service and transfer connections along the corridor. The options in this area include bus service (Broward County Transit,

Sun Trolley, 95 Express Bus, and Tri-Rail Commuter Connector) and passenger rails service (Amtrak and Tri-Rail).

Located within the Broward Boulevard interchange area (between SW 24th Avenue and SW 18th Avenue) are a transit station (Amtrak & Tri-Rail), a Park-and-Ride Lot, and a variety of bus stops from the different services that run on Broward Boulevard and within the Park-and-Ride Lot (BCT, Sun Trolley, 95 Express, and Tri-Rail Commuter Connectors). The Park-and-Ride Lot currently consists of 794 parking spaces throughout five parking lots, with designated parking spaces for Amtrak and Tri-Rail.

Appendix E provides maps of all transit routes that provide service to the project area.

2.6.1 Broward County Transit

BCT, the public transit authority in Broward County, has three bus routes that operating on Broward Boulevard (Routes 9, 22, and 81).

Route 9 provides service from the central business district in Hollywood to the Broward Central Terminal in Fort Lauderdale. Route 9 stops at Broward Boulevard and SW 22 Avenue (Bus Stop Identification (ID) #0725) in the eastbound direction and at Broward and NW 18 Avenue (Bus Stop ID #0615) in the westbound direction.

Route 22 provides service from Sawgrass Mills Mall in Sunrise to the Broward Central Terminal. Route 22 stops at 6 locations within the Park-and-Ride lot, including the Tri-Rail Station (Bus Stop ID #3732).

Route 81 provides service from Plantation to the Broward Central Terminal. Route 81 stops at Broward Boulevard and SW 22 Avenue (Bus Stop ID #0725) in the eastbound direction and stops at Broward and NW 18 Avenue (Bus Stop ID #0615) in the westbound direction.

2.6.2 Sun Trolley

Sun Trolley is a free trolley service that provides routes throughout Fort Lauderdale. Sun Trolley has two routes with a bus stop in front of the train stations at the Park-and-Ride lot; the NW Community Link and the Neighborhood Link.

As its name indicates, the NW Community Link provides service NW of the Broward Boulevard Interchange from Lauderdale Manors (NW 19 Street and NW 9 Avenue) to the Broward Central Terminal.

The Neighborhood Link route provides service to the east and the west of the interchange from Plantation General Hospital (Broward Boulevard and SR-7) to the Broward Central Terminal.

2.6.3 95 Express Bus

Miami-Dade Transit (MDT) runs the 95 Express Bus service from the Broward Boulevard Park-and-Ride lot to Downtown Miami (SE 2nd Street) on weekdays during the AM/PM peak hours. There are multiple stops within the Park-and-Ride lot for 95 express, including a stop in front of the train stations.

2.6.4 Amtrak

Amtrak, a private national passenger rail service, provides service in South Florida from the Fort Lauderdale station directly south to the Hollywood station and directly north to the Deerfield Beach station. Refer to the Amtrak website for more details regarding nationwide routes and stations.

2.6.5 Tri-Rail

Tri-Rail, a commuter rail line managed by the South Florida Regional Transportation Authority (SFRTA), provides service from the Fort Lauderdale station to 17 other Tri-Rail stations from Miami-Dade to Palm Beach County.

2.6.6 Tri-Rail Commuter Connector

Tri-Rail provides three commuter buses from the Ft. Lauderdale Station; Commuter Connectors 1, 2, and 3. Commuter Connectors 1 and 2 run on the weekdays while 3 only runs on the weekends. All three commuter buses provide service to the downtown area and circulate south of Broward Boulevard.

Route 1 provides service from the Tri-Rail station east to NE/SE 3 Avenue, then south to SE/SW 6 Street, then north on Andrews Avenue up to the Broward Central Terminal. Route 2 provides service from the Tri-Rail station south to State Road 84 via I-95, then east to SW 4 Avenue, then north to SE 17 Street, then east to Eisenhower Boulevard Route 3 provides service from the Tri-Rail station east to SE 8 Avenue, then south to Las Olas Boulevard, then west to SE 3 Avenue, then south to SE 17 Street.

2.7 Existing Drainage Systems

The existing drainage within the project limits can be divided into four distinct systems based on existing collection and conveyance systems, interconnected stormwater management facilities, and outfalls. Refer to Appendix B from the Preliminary Drainage Analysis Report for pre-development drainage maps. The existing drainage systems have been delineated as follows:

2.7.1 Existing Drainage System 16A (I-95)

System 16A is defined as the segment of the I-95 corridor from the South Fork of the New River to south of Broward Boulevard, including the Davie Boulevard interchange. The system consists of French drains, multiple dry detention ponds, linear dry detention swales along the east and west sides of I-95, ultimately discharging to the South Fork of the New River. The system is located within the South Florida Water Management District (SFWMD) North New River Drainage Basin. Refer to Figure 8 of Appendix A from the Preliminary Drainage Analysis Report for the SFWMD Drainage Basin Map.

System 16A has been divided into 24 basins, including four offsite basins that are interconnected by culverts connecting the east and west roadside swales and ditches, along with several other existing pipes that drain the runoff to the outside swales. The existing drainage facilities within this section of the corridor include dry detention swales and ponds, located within the northbound on-ramp and southbound

off-ramp on Davie Boulevard, and on the east and west sides of I-95. Runoff from the inside northbound and southbound travel lanes is collected by barrier wall inlets and discharged through median drains along the system. Runoff from the outside northbound and southbound travel lanes sheet flows into roadside swales in some portions, and is collected by barrier wall inlets where there is retaining wall, and conveyed to the swales and ponds. The flow pattern is generally towards the south, where the existing drainage system ultimately discharges into the South Fork of the New River via a 66-inch outfall pipe.

Existing water quality treatment and discharge attenuation is provided within interconnected ponds, swales and French drains upstream of a control structure consisting of a raised Type K Ditch Bottom Inlet and a V-notch bleeder in the southeast pond, just south of the Davie Boulevard interchange (Pond 16A-1).

The Seasonal High Groundwater Table (SHGWT) elevation and static tailwater elevation for the South Fork of the New River assumed for the analysis, modeling, and design associated with this study is 0.42-feet North American Vertical Datum (NAVD). This assumption is in accordance with previous permitting documentation and designs.

Refer to Appendix B from the Preliminary Drainage Analysis Report for pre-development drainage maps.

2.7.2 Existing Drainage System 16B (I-95)

System 16B is defined as the segment of the I-95 corridor from south of Broward Boulevard to the North Fork of the New River, and includes the Broward Boulevard interchange. The existing system consists of French drains, multiple dry ponds and swales within the infield areas and along the east and west sides of I-95, ultimately discharging to the North Fork of the New River. The system is located within the SFWMD North New River Drainage Basin. Refer to Figure 8 of Appendix A from the Preliminary Drainage Analysis Report for the SFWMD Drainage Basin Map.

System 16B is divided into 33 basins, including five offsite basins that are interconnected by culverts connecting the median, east and west roadside ditches, swales and ponds. The existing drainage facilities within this section of the corridor include conveyance swales and ponds, located within the infield areas on the Broward Boulevard interchange, as well as the east and west sides of I-95. Runoff from the inside northbound and southbound travel lanes is collected through barrier wall inlets and discharged through median drains along the system. Runoff from the outside northbound and southbound travel lanes sheet flows into roadside swales in some portions, and is collected by barrier wall inlets where there is retaining wall, and conveyed to the swales and ponds. The flow pattern is generally towards the north, where the existing drainage system ultimately discharges into the North Fork of the New River via a 54-inch outfall pipe.

Existing water quality treatment and discharge attenuation is provided via a series of ponds, swales, and French drain systems. The existing outfall control structures consist of raised Ditch Bottom Inlets with circular orifices for the detention system. These control structures collect and convey all roadway runoff and discharge to the wet pond located in the northeast quadrant of the Broward Boulevard interchange. The existing wet pond does not provide any water quality treatment or discharge attenuation, but rather

collects and conveys the runoff from the upstream systems to the North Fork of the New River through the aforementioned 54-inch outfall pipe.

The SHGWT elevation and static tailwater elevation for the North Fork of the New River assumed for the analysis, modeling, and design associated with this study is 0.42-feet NAVD. This assumption is in accordance with previous permitting documentation and designs.

Refer to Appendix B from Preliminary Drainage Analysis Report for pre-development drainage maps.

2.7.3 Existing Drainage System 17 (I-95)

System 17 is defined as the segment of the I-95 corridor from the North Fork of the New River to just south of the Sunrise Boulevard interchange. The existing system consists of linear dry ponds (swales) along the east and west sides of I-95, ultimately discharging to the North Fork of the New River. The system is located within the SFWMD C-12 Drainage Basin. Refer to Figure 8 of Appendix A from Preliminary Drainage Analysis Report for the SFWMD Drainage Basin Map.

System 17 is divided into nine basins, including two offsite basins. Runoff from the inside northbound and southbound travel lanes is collected by median inlets and conveyed through median drains along the corridor. Runoff from the outside northbound and southbound travel lanes sheet flows into roadside swales. The flow pattern is generally towards the south, where the existing drainage system ultimately discharges into the North Fork of the New River via a 48-inch outfall pipe and a 24-inch outfall pipe. Refer to Appendix B from the Preliminary Drainage Analysis Report for the Pre-Development Drainage Maps.

A control structure is located on the east side of I-95, north of the North Fork of the New River (Pond 17-1). The control structure consists of a raised Type H Ditch Bottom Inlet with a 4-inch circular orifice. A second control structure is located on the west side of I-95, north of the North Fork of the New River (Pond 17-2). This control structure consists of a raised Type D Ditch Bottom Inlet with a 4-inch circular orifice. The two control structures overflow into the North Fork of the New River through the two aforementioned existing 48-inch pipe from Pond 17-1 and 24-inch pipe from Pond 17-2.

The SHGWT elevation and static tailwater elevation for the North Fork of the New River assumed for the analysis, modeling, and design associated with this study is 0.42-feet NAVD. This assumption is in accordance with previous permitting documentation and designs.

Refer to Appendix B from the Preliminary Drainage Analysis Report for pre-development drainage maps.

2.7.4 Existing Drainage System Broward Boulevard (SR-824) and Park & Ride

The Broward Boulevard Park & Ride is comprised of three parking lots on the north and south sides of Broward Boulevard, between the SFRC and NW 22nd Avenue. Interconnected drainage sub-systems provide stormwater collection, conveyance, water quality treatment and discharge attenuation for the Broward Boulevard Park & Ride. A separate drainage system provides collection and conveyance of stormwater runoff for Broward Boulevard, between the SFRC and West 22nd Avenue. The existing Park

& Ride drainage systems consist of French drains and dry ponds that ultimately discharge to the North Fork of the New River via a 60" pipe. The existing Broward Boulevard drainage system consists of curb inlets and solid pipe that collect and convey stormwater runoff from the western approach to the bridge over the SFRC and I-95. Runoff from the Broward Boulevard system comingles with runoff from one of the southern Park & Ride systems, and ultimately discharges to the North Fork of the New River via a 72" pipe, serving Broward Boulevard from SW 28th Terrace to west of I-95 as well as Riverland Road from Davie Boulevard to NW 2nd Street. The system is located within the SFWMD C-12 Drainage Basin. Refer to Appendix A from the Preliminary Drainage Analysis Report for the SFWMD Drainage Basin Map.

The drainage area for the Park & Ride and Broward Boulevard consists of interconnected systems. In the southernmost parking lot, runoff from SW 21st Terrace, the southern ramp connection to I-95, a portion of SW 1st Street, and a portion of the offsite Riverland Neighborhood adjacent to SW 21st Terrace and SW 1st Street is collected and conveyed to the triangular retention pond at the southwest quadrant of SW 1st Street and SW 21st Terrace, between the I-95 ramp and SW 21st Terrace. A control structure, consisting of a raised ditch bottom inlet with a vertical rectangular weir provides water quality treatment and discharge attenuation. This drainage sub-system is referred to as South Lot Sub-System 1.

Stormwater runoff from the southernmost Park & Ride lot and Fort Lauderdale Broward Train Station is collected by curb inlets in the parking lot and yard drains around the train station, and conveyed northward to a control structure consisting of a curb inlet with an internal weir wall. Water quality treatment and discharge attenuation is provided by French drains upstream of the weir. This drainage sub-system is referred to as South Lot Sub-System 3. Downstream of the weir, stormwater overflows from South Lot Sub-Systems 1 and 3 comingles and is conveyed northward, ultimately discharging to the North Fork of the New River via an existing 60-inch pipe.

Runoff from the South Park & Ride lot adjacent to the Broward Boulevard eastbound travel lanes and from a portion of SW 22nd Avenue is collected by catch basins and curb inlets within the parking lot and on SW 22nd Avenue. Water quality treatment and discharge attenuation is provided by existing French drains in the parking lot. Stormwater is conveyed to a control structure located in the northwest quadrant of the parking lot, where overflows are conveyed northward into the Broward Boulevard drainage system, where it is ultimately conveyed to the North Fork of the New River. This drainage sub-system is referred to as South Lot Sub-System 2.

Stormwater runoff from the North Park & Ride lot, as well as the adjacent I-95 on/off ramp, is collected in curb inlets and catch basins and conveyed eastward to a pair of dry retention ponds connected by an existing 18" pipe. The more southern pond (Pond N-5) of the pair contains a control structure consisting of a raised ditch bottom inlet. Water quality treatment and discharge attenuation is provided in the two ponds (Pond N-2 and Pond N-5), and by French drains upstream of the control structure and ponds. Stormwater overflows from this drainage system, referred to as North Lot Sub-System 2, into the existing 60-inch pipe that conveys stormwater overflows from the South Park & Ride Lot Sub-Systems 1 and 3, ultimately discharging to the North Fork of the New River.

Runoff from the northernmost portion of the North Park & Ride lot, along with a portion of NW 22nd Avenue, is collected by curb inlets along NW 22nd Avenue, and catch basins in the northeast quadrant

of the North Park & Ride lot. This drainage sub-system is referred to as North Lot Sub-System 1. Stormwater is conveyed to a catch basin with an internal weir wall, prior to overflowing into the existing 60-inch pipe that conveys stormwater overflows from the South Park & Ride Lot Sub-Systems 1 and 3, and North Park & Ride Lot Sub-system 2, ultimately discharging to the North Fork of the New River. Water quality treatment and discharge attenuation is provided by French drains upstream of the weir.

Stormwater runoff from NW 22nd Avenue, along the north and west perimeters of the Park & Ride lot is collected in curb inlets and conveyed to the large 72" trunkline, where it comingles with runoff from the Broward Boulevard and South Park & Ride lot drainage systems, ultimately discharging to the North Fork of the New River. This drainage sub-system is part of the North Lot Sub-System 1.

Refer to Appendix B from the Preliminary Drainage Analysis Report for pre-development drainage maps.

2.7.5 Total Maximum Daily Load (TMDLs) and Nutrient Impaired Water Bodies

The Florida Department of Environmental Protection (FDEP) has developed a Basin Management Action Plan (BMAP) which implements certain measures in order to restore and protect state waters and addresses Total Maximum Daily Load (TMDLs) requirements for impaired waterbodies. TMDLs represent the maximum amount of a given pollutant that a waterbody can assimilate and still meet water quality standards, including its applicable water quality criteria and its designated uses. TMDLs are developed for waterbodies that are verified as not meeting their water quality standards.

Section 303(d) of the Federal Clean Water Act requires states to submit to the United States Environmental Protection Agency (EPA) lists of surface waters that do not meet applicable water quality standards (impaired waters) and establish a TMDL for each pollutant causing the impairment of listed waters on a schedule. The FDEP has developed such lists, commonly referred to as 303(d) lists, since 1992. The list of impaired waters in each basin, referred to as the Verified List, is also required by the Food Waste Reduction Alliance (FWRA) (Subsection 403.067[4], Florida Statutes [F.S.]); the state's 303(d) list is amended annually to include basin updates.

For assessment purposes, the FDEP has divided the North New River Canal Basin and the South New River Canal (C-11) Basin into water assessment polygons with a unique waterbody identification (WBID) number for each watershed or stream reach. There is one WBID identified within the North New River Canal Basin with TMDLs – for Dissolved Oxygen, Fecal Coliform, Nutrients (Chlorophyll-A), and Mercury (in fish tissue). FDEP listed the North Fork of the New River Canal, WBID No. 3276A, as an impaired waterbody under the Verified List of 2014. There is one WBID identified within the South New River Canal Basin with TMDLs – for Fecal Coliform, Copper, and Mercury (in fish tissue). FDEP listed the South Fork of the New River (C-11) Canal, WBID No. 3277A, as an impaired waterbody under the Verified List of 2014. Refer to Figure 6 of Appendix A from the Preliminary Drainage Analysis Report for limits of WBID No. 3276A and 3277A, and the Verified List of 2014, respectively.

Since the WBIDs identified within the North New River Canal Basin and the South New River Canal (C-11) Basin are not impaired for Nitrogen or Phosphorous, a nutrient loading analysis is not required.

2.7.6 Floodplain Encroachment

The project falls within the Federal Emergency Management Agency (FEMA) defined Zones AE and AH. Zone AE is a special flood hazard area subject to inundation by the 100-year flood, with determined base flood elevations. Zone AH is a special flood hazard area, also subject to inundation by the 100-year flood, that experiences flood depths of 1 to 3 feet (which are usually areas of ponding), with determined base flood elevations.

The project will result only in minimal encroachments to floodplains. These base floodplain encroachments will be constrained to along the east and west sides of I-95, and within the median of the I-95 mainline, as well as along Broward Boulevard. Encroachments resulting from the construction of the project will be fully compensated within the proposed stormwater management facilities to ensure there will be no increase or significant change to flood elevations and/or limits. This project does not encroach upon the base floodplain.

Refer to Figure 7 in Appendix A from the Preliminary Drainage Analysis Report for the FEMA Flood Zone Map.

2.8 Geotechnical Characteristics

A Geotechnical Report was prepared as a part of this PD&E study. The report included review of all existing geotechnical information in connection with the subject project and completed six (6) borehole permeability tests (BHP) at the project site. Based on existing information and experience along the corridor, the project corridor is chiefly underlain by mineral soils (i.e., sands with some silt). It is anticipated that the proposed improvements will not encounter major organic/unsuitable subsoil deposits, which will require special consideration during the design phase. Subsoils have moderate to high capacity to transmit water. Bridge structures within the corridor could be replaced or widened using prestressed concrete pile (PSC) foundations. Refer to Appendix I from the Preliminary Drainage Analysis Report for the Geotechnical Report.

2.8.1 Soils Information

Review of the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Soils Map for Broward County, as well as the project's Geotechnical Report, the project area is underlain by Arents-Urban land complex, Basinger fine sand, Duette-Urban land complex, Immokalee (limestone substratum)-Urban land complex, Immokalee-Urban land complex, Udorthents, and Urban land. Based on the NRCS Maps, no unsuitable soils are found within the project limits. See Figure 4 in Appendix A from the Preliminary Drainage Analysis Report for the USDA NRCS Soil Map of the project and Appendix I for the Geotechnical Report.

2.8.2 Hydraulic Conductivity

As part of the geotechnical investigations, six borehole permeability tests were conducted at the Broward Boulevard Park & Ride parking lots. The BHPs were conducted in order to determine hydraulic

conductivity (k-values) of existing soils for the analysis of existing French drains and design of proposed French drains. Please refer to Appendix I from the Preliminary Drainage Analysis Report for results of the Borehole Permeability Tests.

2.9 Crash Data and Safety Analysis

The operational and safety analysis for the Systems Interchange Modification Report (SIMR) were conducted based on the approved Methodology Letter of Understanding (MLOU) in February 2017. The safety analysis as documented in the approved MLOU included evaluating crash rates, crash patterns, crash types, and their contributing causes.

A crash analysis was performed for crashes along I-95 from David Boulevard to Sunrise Boulevard, and ramps at the I-95 Interchange of Broward Boulevard, and Broward Boulevard from NW 27th Avenue to NW 15th Avenue. Five years of the most recent available crash data was obtained from the department's Crash Analysis Reporting System (CARS) for years 2011 to 2015.

2.9.1 I-95 from Davie Boulevard to Sunrise Boulevard

The crash analysis for I-95 was performed for the segment between Davie Boulevard and Sunrise Boulevard (Section 86070000, MP 8.714 to MP 11.858). A total of 1,868 crashes were reported during the referenced five-year period with 273 crashes in 2011, 333 crashes in 2012, 422 crashes in 2013, 466 crashes in 2014 and 374 crashes in 2015. **Table 2–5** summarizes crash types and contributing factors.

Table 2-5 | Crash Summary along I-95 from Davie Boulevard to Sunrise Boulevard

I-95 from Davie Blvd to Sunrise Blvd		Number of Crashes Year 2011	2012	2013	2014	2015	5 Year Total Crashes	Mean Crashes Per Year	%
CRASH TYPE	Rear End	108	144	206	219	194	871	174	46.6%
	Head On	0	0	0	0	0	0	0	0.0%
	Angle	25	18	16	14	19	92	18	4.9%
	Left Turn	0	0	0	0	0	0	0	0.0%
	Right Turn	0	0	0	0	0	0	0	0.0%
	Sideswipe	59	69	79	81	77	365	73	19.5%
	Backed Into	0	0	0	0	0	0	0	0.0%
	Pedestrian	1	2	2	1	3	9	2	0.5%
	Bicycle	0	0	0	0	0	0	0	0.0%
	Fixed Object	*45*	*44*	*56*	*59*	*30*	*234*	*47*	*12.5%*
	Other Non Fixed Object Collisions	*5*	*12*	*12*	*23*	*13*	*65*	*13*	*3.5%*
	Non-Collisions	*13*	*19*	*15*	*24*	*10*	*81*	*16*	*4.3%*
	Others	17	25	36	45	28	151	30	8.1%
	Total Crashes	**273**	**333**	**422**	**466**	**374**	**1868**	**374**	**100.0%**
CONTRIBUTING CAUSES (VEHICLE ONLY)	No Contributing Action	80	75	85	79	55	374	75	20.0%
	Careless or Negligent Manner	60	109	149	197	161	676	135	36.2%
	Failed to Yield Right-Of-Way	2	0	2	2	4	10	2	0.5%
	Improper Backing	0	0	0	0	0	0	0	0.0%
	Improper Turn	0	1	0	2	0	3	1	0.2%
	Followed too Closely	9	9	11	3	7	39	8	2.1%
	Ran Red Light	0	0	0	0	0	0	0	0.0%
	Drove too Fast for Conditions	5	2	14	11	7	39	8	2.1%
	Ran Stop Sign	0	0	0	0	0	0	0	0.0%
	Improper Passing	3	4	4	8	1	20	4	1.1%
	Exceed Posted Speed	1	0	1	0	0	2	0	0.1%
	Wrong Side or Wrong Way	0	0	0	0	0	0	0	0.0%
	Failed To Keep In Proper Lane	8	10	11	12	11	52	10	2.8%
	Ran Off Roadway	1	2	2	2	0	7	1	0.4%
	Disregarded Other Traffic Sign	0	0	0	0	0	0	0	0.0%
	Disregarded other Road Markings	0	0	0	0	0	0	0	0.0%
	Over-Correcting/Over-Steering	3	4	5	10	2	24	5	1.3%
	Swerved Or Avoided	7	4	12	11	5	39	8	2.1%
	Erratic, Reckless or Aggressive	1	1	0	1	0	3	1	0.2%
	Other Contributing Action	93	112	126	128	121	580	116	31.0%

Based on crash severity, of the 1,868 crashes reported, 746 (40%) were injury type crashes and 1,116 (60%) were property damage only crashes. There were 6 fatal crashes reported during the referenced five-year period that occurred within the study segment.

The study segment was identified as part of high crash segments and included high crash intersections on the Department's high crash listings for all referenced five years.

2.9.2 I-95 Southbound On Ramp from SW 21st Terrace (Section 86070156)

There were no crashes reported during the referenced five-year period on the ramp.

2.9.3 I-95 Northbound Off Ramp to SW 21st Terrace (Section 86070146)

A total of 2 crashes were reported during the referenced five-year perion with 2 crashes in 2014. **Table 2-6** summarizes crash types and contributing factors.

Table 2-6 | Crash Summary along Ramp 86070146

I-95 NB off Ramp to SW 21 Ter		Number of Crashes					5 Year Total Crashes	Mean Crashes Per Year	%
		Year							
		2011	2012	2013	2014	2015			
CRASH TYPE	Rear End	0	0	0	0	0	0	0	0.0%
	Head On	0	0	0	0	0	0	0	0.0%
	Angle	0	0	0	0	0	0	0	0.0%
	Left Turn	0	0	0	0	0	0	0	0.0%
	Right Turn	0	0	0	0	0	0	0	0.0%
	Sideswipe	0	0	0	0	0	0	0	0.0%
	Backed Into	0	0	0	0	0	0	0	0.0%
	Pedestrian	0	0	0	0	0	0	0	0.0%
	Bicycle	0	0	0	0	0	0	0	0.0%
	Fixed Object	*0*	*0*	*0*	*2*	*0*	*2*	*0*	*100.0%*
	Other Non Fixed Object Collisions	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.0%*
	Non-Collisions	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.0%*
	Others	0	0	0	0	0	0	0	0.0%
	Total Crashes	**0**	**0**	**0**	**2**	**0**	**2**	**0**	**100.0%**
CONTRIBUTING CAUSES (VEHICLE ONLY)	No Contributing Action	0	0	0	0	0	0	0	0.0%
	Careless or Negligent Manner	0	0	0	1	0	1	0	50.0%
	Failed to Yield Right-Of-Way	0	0	0	0	0	0	0	0.0%
	Improper Backing	0	0	0	0	0	0	0	0.0%
	Improper Turn	0	0	0	0	0	0	0	0.0%
	Followed too Closely	0	0	0	0	0	0	0	0.0%
	Ran Red Light	0	0	0	0	0	0	0	0.0%
	Drove too Fast for Conditions	0	0	0	0	0	0	0	0.0%
	Ran Stop Sign	0	0	0	0	0	0	0	0.0%
	Improper Passing	0	0	0	0	0	0	0	0.0%
	Exceed Posted Speed	0	0	0	0	0	0	0	0.0%
	Wrong Side or Wrong Way	0	0	0	0	0	0	0	0.0%
	Failed To Keep In Proper Lane	0	0	0	0	0	0	0	0.0%
	Ran Off Roadway	0	0	0	0	0	0	0	0.0%
	Disregarded Other Traffic Sign	0	0	0	0	0	0	0	0.0%
	Disregarded other Road Markings	0	0	0	0	0	0	0	0.0%
	Over-Correcting/Over-Steering	0	0	0	0	0	0	0	0.0%
	Swerved Or Avoided	0	0	0	1	0	1	0	50.0%
	Erratic, Reckless or Aggressive	0	0	0	0	0	0	0	0.0%
	Other Contributing Action	0	0	0	0	0	0	0	0.0%

There were no fatal crashes reported during the referenced five-year period within the study segment. Of the 2 crashes reported, both crashes were property damage only crashes. Both crashes were fixed object crashes.

The subject I-95 ramp did not include high crash intersections nor was a part of a high crash segment on the Department's high crash listings for all referenced five years.

2.9.4 I-95 Southbound On Ramp at Broward Boulevard Intersection (Section 86070038)

A total of 23 crashes were reported during the referenced five-year period with 5 crashes in 2011, 3 crashes in 2012, 3 crashes in 2013, 4 crashes in 2014, and 8 crashes in 2015. **Table 2 - 7** summarizes crash types and contributing factors.

Table 2-7 | Crash Summary along Ramp 86070038

I-95 SB on Ramp from Broward Blvd		Number of Crashes by Year					5 Year Total Crashes	Mean Crashes Per Year	%
		2011	2012	2013	2014	2015			
CRASH TYPE	Rear End	2	0	1	3	2	8	2	34.8%
	Head On	0	0	0	0	0	0	0	0.0%
	Angle	1	1	0	0	0	2	0	8.7%
	Left Turn	0	0	0	0	2	2	0	8.7%
	Right Turn	0	0	0	0	1	1	0	4.3%
	Sideswipe	0	1	0	0	0	1	0	4.3%
	Backed Into	0	0	0	0	0	0	0	0.0%
	Pedestrian	0	0	0	0	0	0	0	0.0%
	Bicycle	0	0	0	0	0	0	0	0.0%
	Fixed Object	*2*	*1*	*2*	*0*	*3*	*8*	*2*	*34.8%*
	Other Non Fixed Object Collisions	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.0%*
	Non-Collisions	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.0%*
	Others	0	0	0	1	0	1	0	4.3%
	Total Crashes	**5**	**3**	**3**	**4**	**8**	**23**	**5**	**100.0%**
CONTRIBUTING CAUSES (VEHICLE ONLY)	No Contributing Action	0	2	0	0	1	3	1	13.0%
	Careless or Negligent Manner	3	0	2	3	1	9	2	39.1%
	Failed to Yield Right-Of-Way	0	0	0	0	0	0	0	0.0%
	Improper Backing	0	0	0	0	0	0	0	0.0%
	Improper Turn	0	0	0	0	0	0	0	0.0%
	Followed too Closely	0	0	0	0	1	1	0	4.3%
	Ran Red Light	0	0	0	0	0	0	0	0.0%
	Drove too Fast for Conditions	0	0	0	0	0	0	0	0.0%
	Ran Stop Sign	0	0	0	0	0	0	0	0.0%
	Improper Passing	0	0	0	0	0	0	0	0.0%
	Exceed Posted Speed	0	0	0	0	0	0	0	0.0%
	Wrong Side or Wrong Way	0	0	0	0	0	0	0	0.0%
	Failed To Keep In Proper Lane	1	0	0	0	0	1	0	4.3%
	Ran Off Roadway	0	1	0	0	0	1	0	4.3%
	Disregarded Other Traffic Sign	0	0	0	0	0	0	0	0.0%
	Disregarded other Road Markings	0	0	0	0	0	0	0	0.0%
	Over-Correcting/Over-Steering	0	0	1	0	0	1	0	4.3%
	Swerved Or Avoided	0	0	0	0	0	0	0	0.0%
	Erratic, Reckless or Aggressive	0	0	0	0	0	0	0	0.0%
	Other Contributing Action	1	0	0	1	5	7	1	30.4%

Based on crash severity, of the 23 crashes reported, 8 (35%) were injury type crashes and 15 (65%) were property damage only crashes. There were no fatal crashes reported during the referenced five-year period within the study segment.

The subject ramp included a high crash intersection on the Department's high crash listings for the year 2013 and 2014.

2.9.5 I-95 Southbound Off Ramp at Broward Boulevard (Section 86070039)

A total of 54 crashes were reported during the referenced five-year period with 12 crashes in 2011, 12 crashes in 2012, 9 crashes in 2013, 11 crashes in 2014, and 10 crashes in 2015. **Table 2 – 8** summarizes crash types and contributing factors.

Table 2-8 | Crash Summary along Ramp 86070039

I-95 SB off Ramp to Broward Blvd		Number of Crashes					5 Year Total Crashes	Mean Crashes Per Year	%
		Year							
		2011	2012	2013	2014	2015			
CRASH TYPE	Rear End	10	10	8	8	5	41	8	75.9%
	Head On	0	0	0	0	0	0	0	0.0%
	Angle	0	1	0	0	1	2	0	3.7%
	Left Turn	0	0	0	0	0	0	0	0.0%
	Right Turn	0	0	0	0	0	0	0	0.0%
	Sideswipe	1	0	1	0	0	2	0	3.7%
	Backed Into	0	0	0	0	0	0	0	0.0%
	Pedestrian	0	0	0	0	0	0	0	0.0%
	Bicycle	0	0	0	0	3	3	1	5.6%
	Fixed Object	*1*	*1*	*0*	*1*	*1*	*4*	*1*	*7.4%*
	Other Non Fixed Object Collisions	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.0%*
	Non-Collisions	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.0%*
	Others	0	0	0	2	0	2	0	3.7%
	Total Crashes	**12**	**12**	**9**	**11**	**10**	**54**	**11**	**100.0%**
CONTRIBUTING CAUSES (VEHICLE ONLY)	No Contributing Action	2	1	0	3	0	6	1	11.1%
	Careless or Negligent Manner	5	6	5	6	2	24	5	44.4%
	Failed to Yield Right-Of-Way	0	0	0	0	0	0	0	0.0%
	Improper Backing	0	0	0	0	0	0	0	0.0%
	Improper Turn	0	0	0	0	0	0	0	0.0%
	Followed too Closely	0	1	0	0	1	2	0	3.7%
	Ran Red Light	0	0	0	0	0	0	0	0.0%
	Drove too Fast for Conditions	1	0	0	0	0	1	0	1.9%
	Ran Stop Sign	0	0	0	0	0	0	0	0.0%
	Improper Passing	0	0	0	0	0	0	0	0.0%
	Exceed Posted Speed	0	1	0	0	0	1	0	1.9%
	Wrong Side or Wrong Way	0	0	0	0	0	0	0	0.0%
	Failed To Keep In Proper Lane	0	0	0	0	0	0	0	0.0%
	Ran Off Roadway	1	0	0	1	0	2	0	3.7%
	Disregarded Other Traffic Sign	0	0	0	0	0	0	0	0.0%
	Disregarded other Road Markings	0	0	0	0	0	0	0	0.0%
	Over-Correcting/Over-Steering	0	0	0	0	0	0	0	0.0%
	Swerved Or Avoided	0	0	0	0	0	0	0	0.0%
	Erratic, Reckless or Aggressive	0	0	0	0	0	0	0	0.0%
	Other Contributing Action	3	3	4	1	7	18	4	33.3%

Based on crash severity, of the 54 crashes reported, 27 (50%) were injury type crashes and 27 (50%) were property damage only crashes. There were no fatal crashes reported during the referenced five-year period within the study segment.

The subject ramp included high crash intersections on the Department's high crash listings for the year 2011, 2013 and 2014.

2.9.6 I-95 Northbound Off Ramp at Broward Boulevard (Section 86070040)

A total of 80 crashes were reported during the referenced five-year period with 16 crashes in 2011, 15 crashes in 2012, 15 crashes in 2013, 23 crashes in 2014, and 11 crashes in 2015. **Table 2 – 9** summarizes crash types and contributing factors.

Table 2-9 | Crash Summary along Ramp 86070040

I-95 NB off Ramp to Broward Blvd		Number of Crashes					5 Year Total Crashes	Mean Crashes Per Year	%
		Year							
		2011	2012	2013	2014	2015			
CRASH TYPE	Rear End	14	11	12	13	8	58	12	72.5%
	Head On	0	0	0	0	1	1	0	1.3%
	Angle	0	0	0	0	1	1	0	1.3%
	Left Turn	0	0	0	0	0	0	0	0.0%
	Right Turn	0	0	0	0	0	0	0	0.0%
	Sideswipe	0	0	1	3	0	4	1	5.0%
	Backed Into	0	0	0	0	0	0	0	0.0%
	Pedestrian	0	0	0	1	0	1	0	1.3%
	Bicycle	1	0	0	0	0	1	0	1.3%
	Fixed Object	*0*	*2*	*1*	*3*	*0*	*6*	*1*	*7.5%*
	Other Non Fixed Object Collisions	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.0%*
	Non-Collisions	*0*	*1*	*1*	*2*	*0*	*4*	*1*	*5.0%*
	Others	1	1	0	1	1	4	1	5.0%
	Total Crashes	**16**	**15**	**15**	**23**	**11**	**80**	**16**	**100.0%**
CONTRIBUTING CAUSES (VEHICLE ONLY)	No Contributing Action	2	1	2	2	0	7	1	8.8%
	Careless or Negligent Manner	6	7	10	13	8	44	9	55.0%
	Failed to Yield Right-Of-Way	0	0	0	1	0	1	0	1.3%
	Improper Backing	0	0	0	0	0	0	0	0.0%
	Improper Turn	0	0	0	0	0	0	0	0.0%
	Followed too Closely	1	1	0	1	1	4	1	5.0%
	Ran Red Light	0	0	0	0	0	0	0	0.0%
	Drove too Fast for Conditions	1	0	0	0	0	1	0	1.3%
	Ran Stop Sign	0	0	0	0	0	0	0	0.0%
	Improper Passing	1	0	0	0	0	1	0	1.3%
	Exceed Posted Speed	0	0	0	0	0	0	0	0.0%
	Wrong Side or Wrong Way	0	0	0	0	0	0	0	0.0%
	Failed To Keep In Proper Lane	0	0	0	0	0	0	0	0.0%
	Ran Off Roadway	0	0	0	0	0	0	0	0.0%
	Disregarded Other Traffic Sign	0	0	0	0	0	0	0	0.0%
	Disregarded other Road Markings	0	0	0	0	0	0	0	0.0%
	Over-Correcting/Over-Steering	0	0	0	0	0	0	0	0.0%
	Swerved Or Avoided	0	0	0	2	0	2	0	2.5%
	Erratic, Reckless or Aggressive	0	1	0	0	0	1	0	1.3%
	Other Contributing Action	5	5	3	4	2	19	4	23.8%

Based on crash severity, of 80 reported, 30 (38%) were injury type crashes and 50 (62%) were property damage only crashes. There were no fatal crashes reported during the referenced five-year period within the study segment.

The subject ramp included high crash intersections on the Department's high crash listings for the year 2011, 2012, 2013 and 2014.

2.9.7 I-95 Northbound On Ramp at Broward Boulevard (Section 86040041)

A total of 21 crashes were reported during the referenced five-year period with 4 crashes in 2011, 7 crashes in 2012, 2 crashes in 2013, 4 crashes in 2014, and 4 crashes in 2015. **Table 2 – 10** summarizes crash types and contributing factors.

Table 2-10 | Crash Summary along Ramp 86070041

I-95 NB on Ramp from WB Broward Blvd		Number of Crashes by Year					5 Year Total Crashes	Mean Crashes Per Year	%
		2011	2012	2013	2014	2015			
CRASH TYPE	Rear End	1	2	0	1	2	6	1	28.6%
	Head On	0	0	0	0	0	0	0	0.0%
	Angle	0	0	0	0	0	0	0	0.0%
	Left Turn	0	0	0	0	0	0	0	0.0%
	Right Turn	0	0	0	0	0	0	0	0.0%
	Sideswipe	0	1	0	0	1	2	0	9.5%
	Backed Into	0	0	0	0	0	0	0	0.0%
	Pedestrian	0	0	0	0	0	0	0	0.0%
	Bicycle	0	1	0	0	0	1	0	4.8%
	Fixed Object	*2*	*2*	*1*	*2*	*1*	*8*	*2*	*38.1%*
	Other Non Fixed Object Collisions	*0*	*1*	*0*	*0*	*0*	*1*	*0*	*4.8%*
	Non-Collisions	*0*	*0*	*1*	*1*	*0*	*2*	*0*	*9.5%*
	Others	1	0	0	0	0	1	0	4.8%
	Total Crashes	**4**	**7**	**2**	**4**	**4**	**21**	**4**	**100.0%**
CONTRIBUTING CAUSES (VEHICLE ONLY)	No Contributing Action	0	3	0	0	0	3	1	14.3%
	Careless or Negligent Manner	0	2	2	3	2	9	2	42.9%
	Failed to Yield Right-Of-Way	1	0	0	0	0	1	0	4.8%
	Improper Backing	0	0	0	0	0	0	0	0.0%
	Improper Turn	0	0	0	0	0	0	0	0.0%
	Followed too Closely	0	1	0	0	0	1	0	4.8%
	Ran Red Light	0	0	0	0	0	0	0	0.0%
	Drove too Fast for Conditions	0	0	0	0	0	0	0	0.0%
	Ran Stop Sign	0	0	0	0	0	0	0	0.0%
	Improper Passing	0	0	0	0	0	0	0	0.0%
	Exceed Posted Speed	0	0	0	0	0	0	0	0.0%
	Wrong Side or Wrong Way	0	0	0	0	0	0	0	0.0%
	Failed To Keep In Proper Lane	0	0	0	0	0	0	0	0.0%
	Ran Off Roadway	0	0	0	0	0	0	0	0.0%
	Disregarded Other Traffic Sign	0	0	0	0	0	0	0	0.0%
	Disregarded other Road Markings	0	0	0	0	0	0	0	0.0%
	Over-Correcting/Over-Steering	0	0	0	0	1	1	0	4.8%
	Swerved Or Avoided	0	0	0	0	0	0	0	0.0%
	Erratic, Reckless or Aggressive	0	0	0	0	0	0	0	0.0%
	Other Contributing Action	3	1	0	1	1	6	1	28.6%

Based on crash severity, of the 21 crashes reported, 7 (33%) were injury type crashes, and 13 (62%) were property damage only crashes. There was one fatal crash reported in 2012 within the study segment.

The subject ramp included high crash intersections on the Department's high crash listings for the years 2013 and 2014, not 2012.

2.9.8 I-95 Northbound On Ramp from Access Road (Section 86070143)

A total of 2 crashes were reported during the referenced five-year period with one crash in 2011, and another in 2013. **Table 2 – 11** summarizes crash types and contributing factors.

Table 2-11 | Crash Summary along Ramp 86070143

I-95 NB on Ramp from Access Rd		Number of Crashes Year					5 Year Total Crashes	Mean Crashes Per Year	%
		2011	2012	2013	2014	2015			
CRASH TYPE	Rear End	0	0	0	0	0	0	0	0.0%
	Head On	0	0	0	0	0	0	0	0.0%
	Angle	0	0	0	0	0	0	0	0.0%
	Left Turn	0	0	0	0	0	0	0	0.0%
	Right Turn	0	0	0	0	0	0	0	0.0%
	Sideswipe	0	0	0	0	0	0	0	0.0%
	Backed Into	0	0	0	0	0	0	0	0.0%
	Pedestrian	0	0	0	0	0	0	0	0.0%
	Bicycle	0	0	0	0	0	0	0	0.0%
	Fixed Object	*1*	*0*	*1*	*0*	*0*	*2*	*0*	*100.0%*
	Other Non Fixed Object Collisions	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.0%*
	Non-Collisions	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.0%*
	Others	0	0	0	0	0	0	0	0.0%
	Total Crashes	**1**	**0**	**1**	**0**	**0**	**2**	**0**	**100.0%**
CONTRIBUTING CAUSES (VEHICLE ONLY)	No Contributing Action	1	0	0	0	0	1	0	50.0%
	Careless or Negligent Manner	0	0	0	0	0	0	0	0.0%
	Failed to Yield Right-Of-Way	0	0	0	0	0	0	0	0.0%
	Improper Backing	0	0	0	0	0	0	0	0.0%
	Improper Turn	0	0	0	0	0	0	0	0.0%
	Followed too Closely	0	0	0	0	0	0	0	0.0%
	Ran Red Light	0	0	0	0	0	0	0	0.0%
	Drove too Fast for Conditions	0	0	0	0	0	0	0	0.0%
	Ran Stop Sign	0	0	0	0	0	0	0	0.0%
	Improper Passing	0	0	0	0	0	0	0	0.0%
	Exceed Posted Speed	0	0	0	0	0	0	0	0.0%
	Wrong Side or Wrong Way	0	0	0	0	0	0	0	0.0%
	Failed To Keep In Proper Lane	0	0	0	0	0	0	0	0.0%
	Ran Off Roadway	0	0	0	0	0	0	0	0.0%
	Disregarded Other Traffic Sign	0	0	0	0	0	0	0	0.0%
	Disregarded other Road Markings	0	0	0	0	0	0	0	0.0%
	Over-Correcting/Over-Steering	0	0	0	0	0	0	0	0.0%
	Swerved Or Avoided	0	0	0	0	0	0	0	0.0%
	Erratic, Reckless or Aggressive	0	0	0	0	0	0	0	0.0%
	Other Contributing Action	0	0	1	0	0	1	0	50.0%

Based on crash severity, of the 2 crashes reported, one was injury type crash and another was property damage only crash. There were no fatal crashes reported during the referenced five-year period within the study segment.

The subject ramp included a high crash intersection on the Department's high crash listings for the year 2013 and 2014.

2.9.9 I-95 Southbound Off Ramp to Access Road (86070144)

There were no crashes reported during the referenced five-year period at the subject ramp.

2.9.10 Broward Boulevard from NW 12th Avenue to NW 15th Avenue

A total of 568 crashes were reported during the referenced five-year period with 68 crashes in 2011, 86 crashes in 2012, 152 crashes in 2013, 194 crashes in 2014, and 68 crashes in 2015. **Table 2 – 12** summarizes crash types and contributing factors.

Table 2-12 | Crash Summary along Broward Boulevard from NW 27th Avenue to NW 15th Avenue

Broward Blvd from NW 27 Ave to NW 15 Ave		Number of Crashes					5 Year Total Crashes	Mean Crashes Per Year	%
		Year							
		2011	2012	2013	2014	2015			
CRASH TYPE	Rear End	31	44	83	103	29	290	58	51.1%
	Head On	0	1	0	0	0	1	0	0.2%
	Angle	10	15	22	28	11	86	17	15.1%
	Left Turn	1	4	4	7	1	17	3	3.0%
	Right Turn	0	0	1	1	2	4	1	0.7%
	Sideswipe	9	7	16	8	9	49	10	8.6%
	Backed Into	0	0	0	3	0	3	1	0.5%
	Pedestrian	4	1	6	4	5	20	4	3.5%
	Bicycle	1	3	3	4	0	11	2	1.9%
	Fixed Object	*1*	*2*	*5*	*3*	*1*	*12*	*2*	*2.1%*
	Other Non Fixed Object Collisions	*2*	*1*	*2*	*4*	*0*	*9*	*2*	*1.6%*
	Non-Collisions	*2*	*2*	*0*	*5*	*2*	*11*	*2*	*1.9%*
	Others	7	6	10	24	8	55	11	9.7%
	Total Crashes	**68**	**86**	**152**	**194**	**68**	**568**	**114**	**100.0%**
CONTRIBUTING CAUSES (VEHICLE ONLY)	No Contributing Action	14	11	23	12	7	67	13	11.8%
	Careless or Negligent Manner	9	8	32	45	3	97	19	17.1%
	Failed to Yield Right-Of-Way	3	9	11	15	3	41	8	7.2%
	Improper Backing	1	1	1	5	2	10	2	1.8%
	Improper Turn	0	2	6	3	1	12	2	2.1%
	Followed too Closely	6	10	15	19	5	55	11	9.7%
	Ran Red Light	3	7	0	10	2	22	4	3.9%
	Drove too Fast for Conditions	0	2	1	0	0	3	1	0.5%
	Ran Stop Sign	0	0	0	0	0	0	0	0.0%
	Improper Passing	2	1	1	1	1	6	1	1.1%
	Exceed Posted Speed	0	0	0	0	0	0	0	0.0%
	Wrong Side or Wrong Way	0	0	1	0	0	1	0	0.2%
	Failed To Keep In Proper Lane	7	0	6	11	2	26	5	4.6%
	Ran Off Roadway	0	0	0	0	0	0	0	0.0%
	Disregarded Other Traffic Sign	0	0	0	0	0	0	0	0.0%
	Disregarded other Road Markings	0	0	0	0	0	0	0	0.0%
	Over-Correcting/Over-Steering	0	0	0	0	0	0	0	0.0%
	Swerved Or Avoided	0	0	0	0	0	0	0	0.0%
	Erratic, Reckless or Aggressive	0	0	0	0	0	0	0	0.0%
	Other Contributing Action	23	35	55	73	42	228	46	40.1%

Based on crash severity of the 568 crashes reported, 207 (36%) were injury type crashes and 360 (63%) were property damage only crashes. There was one fatal crash reported in 2012 within the study segment.

The crash rate of the study segment was higher than statewide average crash rate in the year 2011 through 2014 and higher than the district average crash rate in the year 2013 and 2014.

2.10 Utilities

Based on field evaluation there is an electrical distribution overhead line crossing I-95 approximately 650' north of Davie Boulevard and a high voltage electrical transmission line crossing I-95 over the NW 6th Street Bridge. Overhead power lines cross Broward Boulevard just east of SW 22nd. Avenue. Exploratory utility test holes were not part of the project's scope. Existing utility owners and their respective contact personnel are provided in **Table 2-13**.

2.11 Design and Posted Speeds

The posted speed limits for the roadways within the study limits are as follows:

- Broward Boulevard: 40 miles per hour
- I-95: 65 miles per hour
- Existing former HOV off Ramps: 25 miles per hour (advisory)

The design speed for Broward Boulevard and I-95, field verified within the project limits are as follows:

- Broward Boulevard: 45 miles per hour
- I-95: 65 miles per hour

Table 2-13 | Existing Utility Owners

Type	Location	Utility Angency/ Owner	Contac Information	Contact Person
Water, Sewer, Traffic	Utilities present within Broward Blvd Project limits	Broward County	(954) 8477-2745 Alt (954) 261-44-27	Robert Blount
CATV, Fiber	Subgrade facilities along west side of NW 22nd Ave. Existing/active aerial plant attached to ulity poles within project limits.	Comcast Cable	(954) 447-8405 Leonard_Maxwell-Newbold@cable.comcast.com	Leonard Maxwell-Newbold
Water, Sewer	Utilities present within Broward Blvd Project limits	City of Ft. Lauderdale	(954) 828-7830 JStahl@fortlauderdale.gov	Jon Stahl
Fiber optic	Utilities present within Broward Blvd Project limits	Fiberlight	(754) 227-4345 wayne.kramer@fiberlight.com	Wayne Kramer
Electric	Overhead utilities within project limits over I-95 south of Broward Blvd. Underground ducts north of Broward Blvd. across I-95. Overhead utitilities north side of Sistrunk Blvd. Overhead utilities south side of SW 1st St. Underground utitlies north side of Broward from NW 24th Ave, to west side of NW 22nd Ave.	FPL Distribution	(954) 321-2056 byron.sample@fpl.com	Byron Sample
Fiber	Utilities present within Broward Blvd Project limits	Fibernet Direct	(605) 552-2931 Alt (786) 246-7827 danny.haskett@fpl.com	Danny Haskett
Fiber optic	Underground FOC north side of Broward from east of project limits to west of project limits.	Level 3	(720) 888-0916 michael.nunez@level3.com	Michael Nunez
Communications, Fiber optics	Utilities present within Broward Blvd Project limits	MCI/Verizon	(863) 965-6438 john.mcneil@verizon.com	John McNeil
Gas	4" steel gas main sw corner of Broward at SW 24th Ave, intersection 4" steel gas main runs east approximately 15' south of ROW on the north side of Broward Blvd., crosses to the south side of Broward at NW 22nd Ave. connecting to a 2" steel gas main. 4" Steel gas main at SE corner of Browrad Blvd. at SW 18th Ave, and runs east to and through the study limits. 6" steel gas main crosses I-95 north of Davie Blvd. 6" steel gas main crossing I-95 at NW 8th St.	TECO Peoples gas	(954) 453-0794 Drrivera@Tecoenergy.com	David Rivera
Telephone	Underground conduit north side of Broward Blvd. from SW 24th Ave. to east of 18th Ave. Underground conduit east side of 18th Ave. Underground conduit west side of NW 22nd Ave. Underground conduit north side of SW 1st St.	AT&T	(954) 723-2540 ok1184@att.com	Otis Keeve

2.12 Traffic Characteristics

2.12.1 Existing Conditions

The Interchange of I-95 at Broward Boulevard is located in central Broward County in the City of Fort Lauderdale, between the Sunrise Boulevard Interchange (one mile to the north) and the Davie Boulevard Interchange (one mile to the south). The interchange provides the main entryway to the downtown Fort Lauderdale Central Business District from I-95 and the east-west connection between US-1 and SR-817/University Drive in the City of Plantation.

The South Florida Rail Corridor (SFRC)/CSX Railroad is adjacent to and runs parallel along the west side of I-95 in this area. The I-95/Broward Boulevard (SR-842) (Roadway Segment 86006000) interchange is located at milepost 10.201 of I-95 (Roadway Segment 86070000) on the west edge of the Fort Lauderdale city limits. It is approximately 1.0 mile south of the I-95/Sunrise Boulevard (SR-838) (Roadway Segment 86110000) interchange and 1.42 miles north of the I-95/Davie Boulevard (SR-736) (Roadway Segment 86210000) interchange.

SR-842/Broward Boulevard and Sunrise Boulevard are six-lane urban divided roadways with raised medians within the vicinity of the I-95 Interchange. The SR-842/Broward Boulevard interchange provides the main entryway to the downtown Fort Lauderdale Central Business District from I-95 and the east-west connection between US-1 and SR-817/University Drive in the City of Plantation.

2.12.2 Existing Transportation Network

I-95 is the primary north-south interstate facility that links all major cities along the Atlantic Seaboard and is one of the most important transportation systems in southeast Florida. I-95 is one of two major expressways, Florida's Turnpike being the other, that connect the major employment centers and residential areas within the South Florida tri-county area. I-95 is part of the State's SIS and the National Highway System (NHS). In addition, I-95 is designated as an evacuation route along the east coast of Florida.

I-95 within the project area is a ten-lane facility with four GP travel lanes and one former HOV lane in each direction. I-95 has a posted speed limit near the Broward Boulevard interchange of 65 miles per hour (mph).

The Broward Boulevard interchange is a diamond interchange. Broward Boulevard is a six-lane east-west arterial thorough Broward County and the City of Fort Lauderdale. Within the project limits, Broward Boulevard is functionally classified as a Divided Urban Principal Arterial with a posted speed limit of 40 mph. Broward Boulevard from I-95 to NE 3rd Avenue is a designated SIS Connector providing access to the Greyhound Bus Station located just east of NW 2nd Avenue in Fort Lauderdale. The Broward Boulevard interchange currently provides direct connect access with a southbound entrance ramp from Broward Boulevard onto I-95 through the existing former HOV ramps, and a northbound exit ramp from I-95 to Broward Boulevard.

The Sunrise Boulevard interchange is currently a modified partial cloverleaf interchange with one loop ramp on the NE quadrant located on the west edge of the Fort Lauderdale city limits. Sunrise Boulevard is classified as a six-lane divided Urban Principal Arterial with a posted speed limit of 40 mph.

The Davie Boulevard interchange is currently a diamond interchange. Within the project limits, Davie Boulevard is functionally classified as a four-lane divided State Minor Arterial with a posted speed limit of 40 mph.

The CD system currently exists south of the Broward Boulevard interchange. The southbound CD originates after one of the two lanes from the southbound on-ramp terminal splits and forms a southbound CD. The northbound CD terminates at southbound off-ramp. The northbound off-ramp is a two-lane facility with one lane ramp coming from the northbound CD and another lane ramp from the I-95 GP lanes. Both southbound and northbound CDs provide access to Davie Boulevard and I-595 interchanges.

2.13 Existing Traffic Volumes

2.13.1 Data Collection

The traffic data including traffic volume counts, the intersection turning movement volumes, I-95 CD ramps, origin-destination (O-D) data and data for micro simulation were collected in September and October 2016. The signal timing plans for signalized intersections were obtained from Broward County. **Figure 2-5** through **Figure 2-7** show intersection geometry, number of lanes, and peak-hour traffic volumes for the study area.

The Park-and-Ride lot usage inventory was conducted in October 2016 and detailed data collection information and referenced documents are included in the SIMR.

Figure 2-5 | Existing Traffic for I-95 at Davie Boulevard Interchange

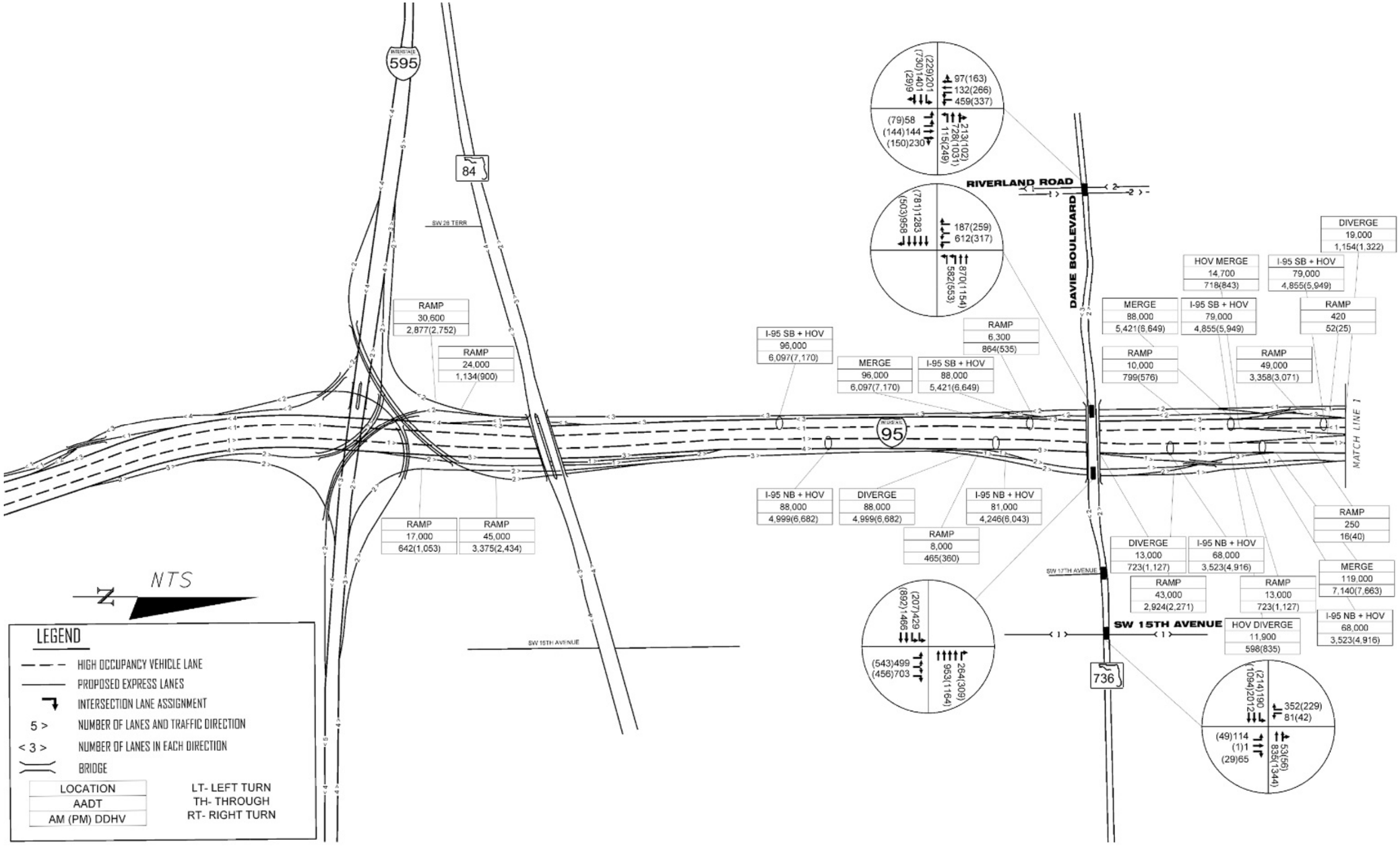


Figure 2-6 | Existing Traffic for I-95 at Broward Boulevard Interchange

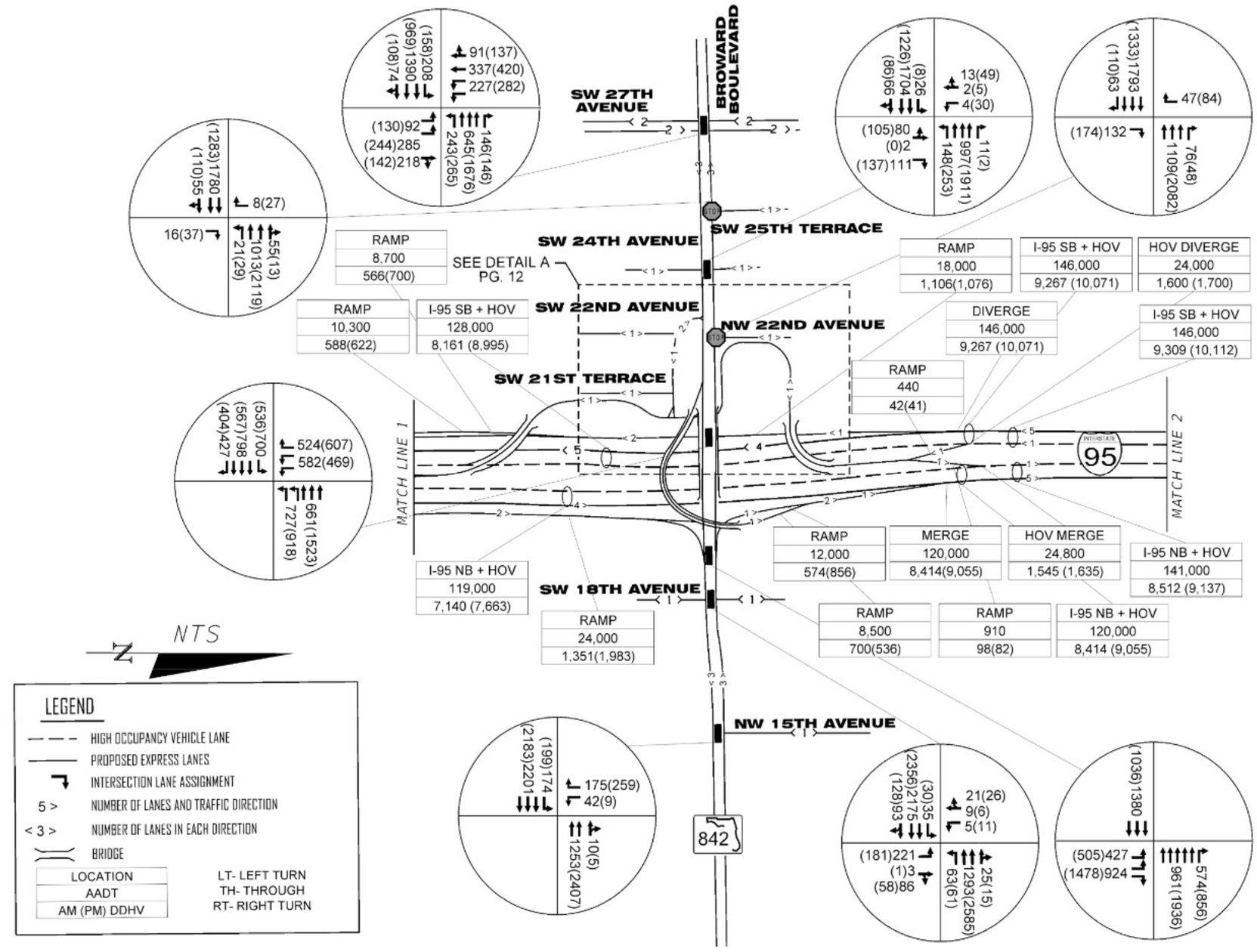
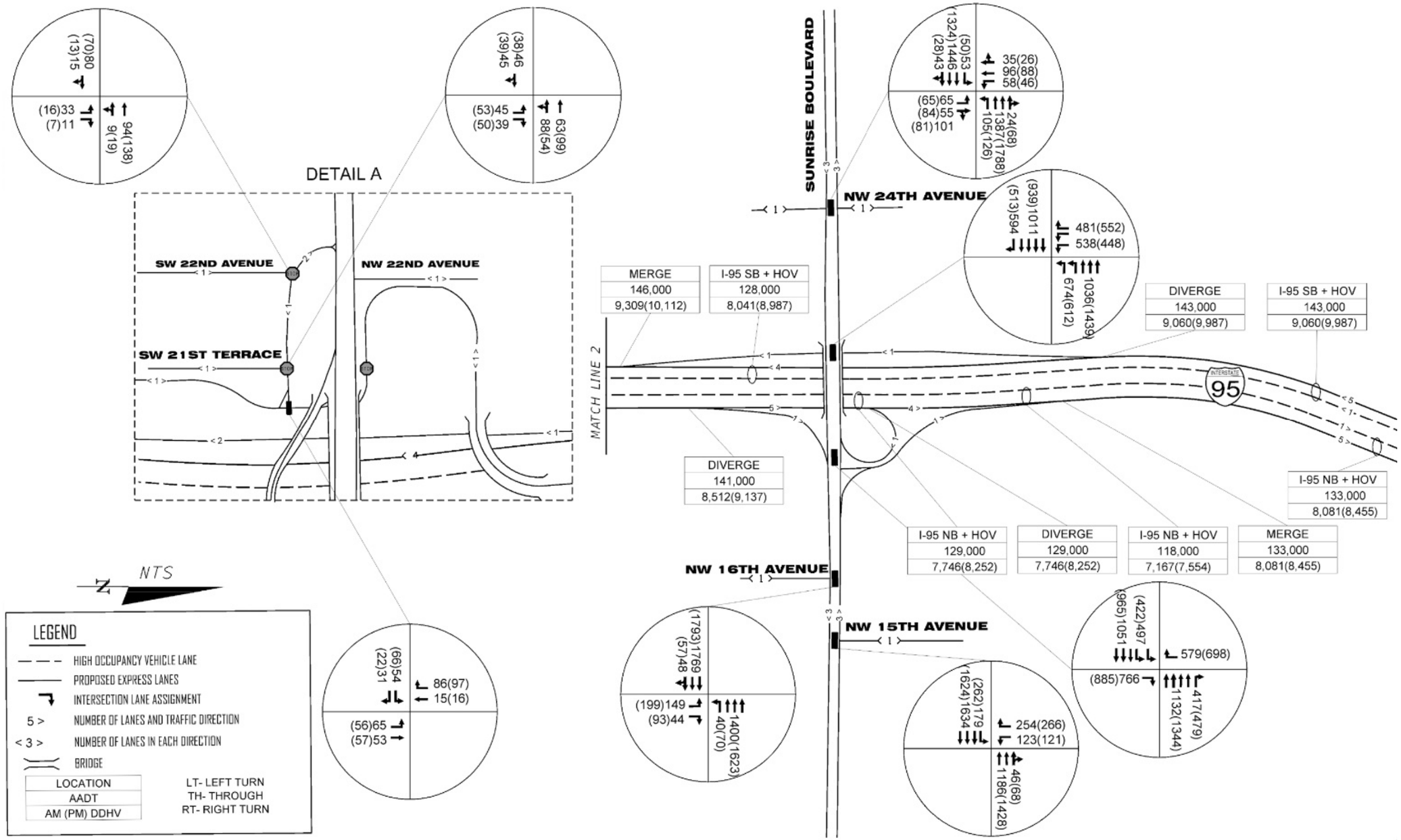


Figure 2-7 | Existing Traffic for I-95 at Sunrise Boulevard Interchange



2.14 Modeling and Travel Demand

2.14.1 VISSIM Model Development and Calibration

VISSIM models were constructed and calibrated to 2016 Existing Conditions. The Federal Highway Administration's (FHWA) Traffic Analysis Toolbox Volume III: Guidelines for Applying Traffic Micro simulation Modeling Software, 2014 FDOT Traffic Analysis Handbook and 2011 Oregon Department of Transportation Protocol for VISSIM Simulation were used as guidelines for the development of VISSIM models.

The development of the VISSIM models and the calibration process are documented in detail in the SR-9/I-95 at Broward Boulevard from West of SW 24th Avenue to East of NW/SW 18th Avenue VISSIM Model Development and Calibration Report dated August 9, 2017 and is included in Appendix D from the SIMR.

The VISSIM model was utilized to evaluate traffic operations for the Existing Year (2016) Conditions. All simulation output is based on the average data from ten simulation runs. Consistent with the approved MLOU, the Measures of Effectiveness (MOEs) that were assessed from the simulation analysis include the following:

- Intersection Node Evaluation: Volume, delay, and max queue length for the study area intersections for all movements.
- Link Evaluation Segments: Volume and Speed information for General Use Lanes, Express Lanes and access points within the study area. Temporal and spatial volume and speed profiles will be provided.
- Network-Wide Output: Total travel time, total delay time, latent volume and latent delay.

2.14.2 Intersection Node Evaluation

Node Evaluation output from VISSIM represents intersection evaluation for the study intersections. An estimated LOS based on Highway Capacity Manual metrics for both AM and PM peak-hour is summarized in **Table 2-15** and **Table 2-15**. The signal timing plans and detailed output for the Node Evaluation analysis showing volume, delay, and max queue length for the study area intersections for all movements are included in Appendix E from the SIMR.

The results of intersection analyses indicate that all the intersections are performing at D or better with the exception of the Davie Boulevard and Riverland Road intersection which is operating at LOS E in the AM peak hour.

Table 2-14 | Intersection Node Evaluation Summary - Existing AM Peak Hour

Interchange	Signalized Intersection	Existing AM	
		Delay (sec)	Estimated LOS
Sunrise Boulevard	NW 24th Avenue	27.3	C
	I-95 SB Ramp	37.6	D
	I-95 NB Ramp	21.5	C
	NW 16th Avenue	10.3	B
	NW 15th Avenue	18.3	B
Broward Boulevard	NW 27th Avenue	34.1	C
	SW 24th Avenue	7.9	A
	SW 22nd Avenue	7.1	A
	I-95 SB Ramp	36.0	D
	I-95 NB Ramp	12.6	B
	SW 18th Avenue / NW 18th Avenue	22.5	C
	NW 15th Avenue	5.3	A
Park and Ride	SW 21th T	18.6	B
Davie Boulevard	Riverland Drive	65.2	E
	I-95 SB Ramp	10.4	B
	I-95 NB Ramp	26.3	C
	SW 15th Avenue	46.8	D

Table 2-15 | Intersection Node Evaluation Summary - Existing PM Peak Hour

Interchange	Intersection	Existing PM	
		Delay (sec)	Estimated LOS
Sunrise Boulevard	NW 24th Avenue	30.9	C
	I-95 SB Ramp	32.7	C
	I-95 NB Ramp	17.8	B
	NW 16th Avenue	13.6	B
	NW 15th Avenue	21.7	C
Broward Boulevard	NW 27th Avenue	35.5	D
	SW 24th Avenue	7.1	A
	SW 22nd Avenue	9.5	A
	I-95 SB Ramp	24.5	C
	I-95 NB Ramp	22.1	C
	SW 18th Avenue / NW 18th Avenue	15.6	B
	NW 15th Avenue	5.7	A
Park and Ride	SW 21th T	18.8	B
Davie Boulevard	Riverland Drive	38.1	D
	I-95 SB Ramp	5.2	A
	I-95 NB Ramp	20.6	C
	SW 15th Avenue	20.8	C

2.14.3 Link Evaluation

The VISSIM micro-simulation models were used to produce volume and speed profiles along the I-95 GP lanes for freeway operations for both the AM and PM peak hours using link evaluation. Average volume and average speed profiles provide a good representation of the traffic flow along the corridor. **Figure 2-8** through **Figure 2-15** depict the average speed and volumes profiles along the corridor for the existing condition.

The results of link evaluation indicate the following:

- I-95 northbound is operating at or near free flow speed during the AM and PM peak periods.
- I-95 southbound experiences significant congestion near Broward Boulevard and Sunrise Boulevard due to the weaving segment between interchanges. Speeds between 20 mph and 30 mph were observed in both the AM and PM peak periods. Slow operating speeds extend well beyond Sunrise Boulevard in the PM peak period.
- I-95 southbound experiences significant congestion south of I-595 as well, with reduced operating speeds that extend to Davie Boulevard.

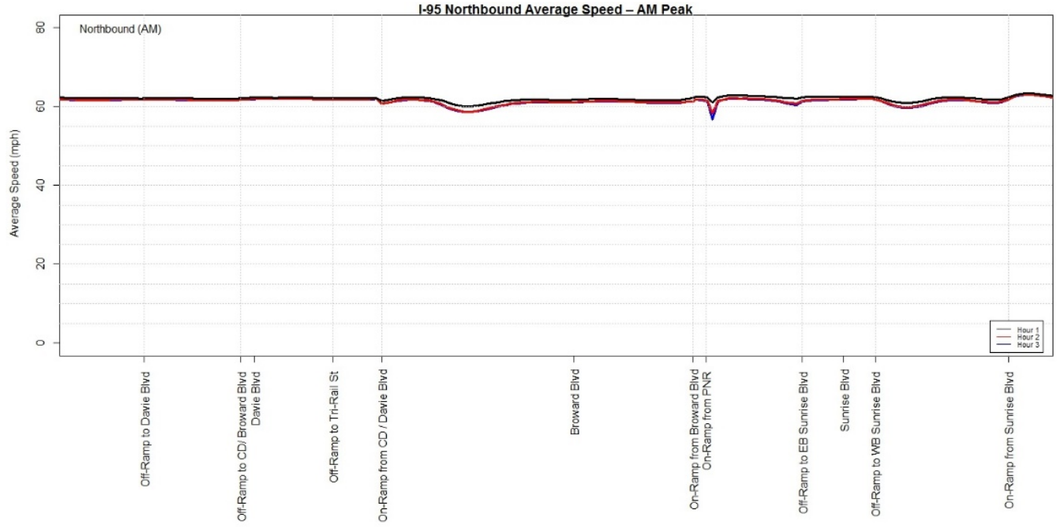


Figure 2-8 | Existing Northbound Average Speed for AM Peak Hour

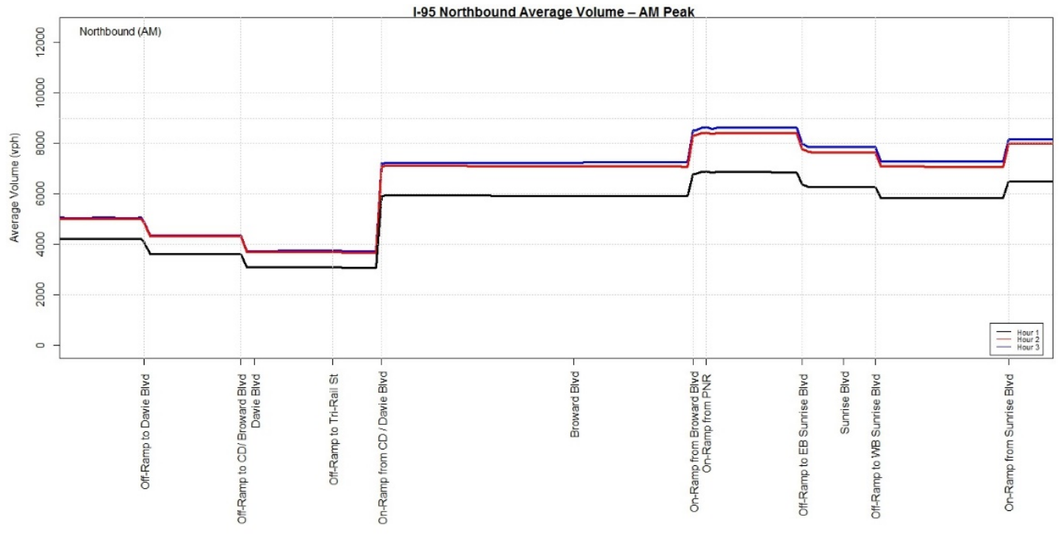


Figure 2-9 | Existing Northbound Volume Profiles for AM Peak Hour

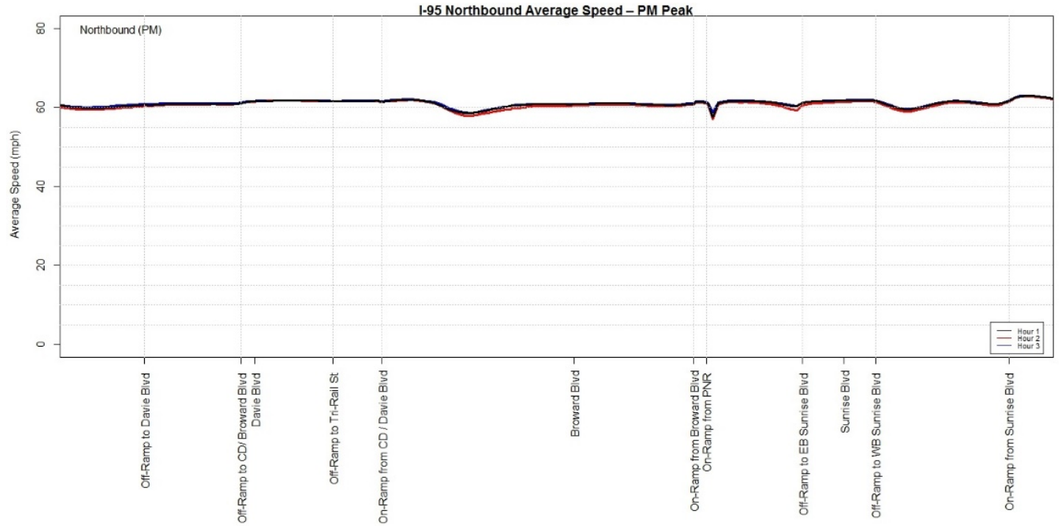


Figure 2-10 | Existing Northbound Average Speed for PM Peak Hour

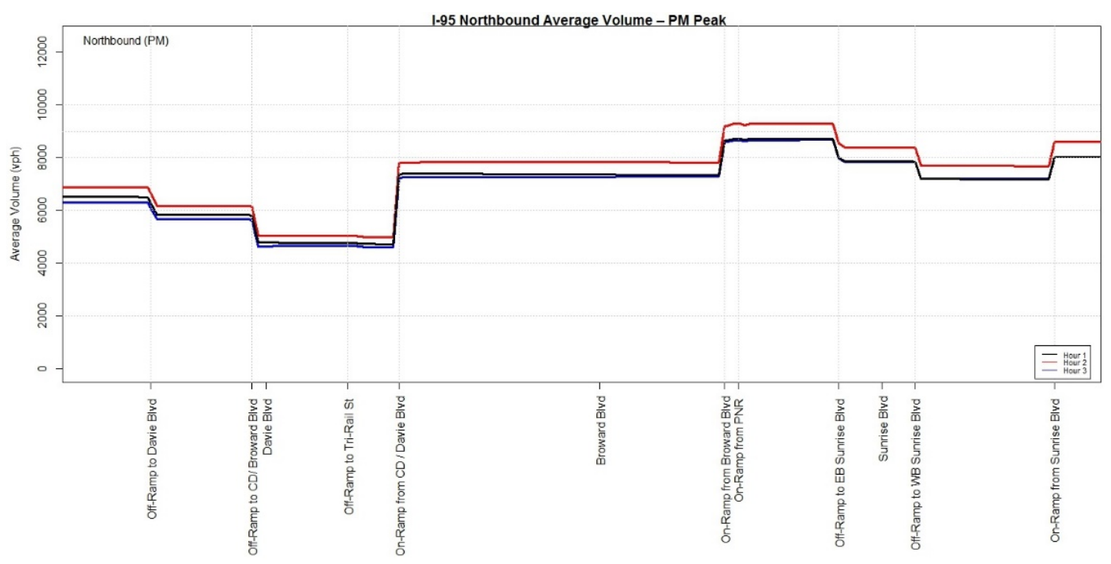


Figure 2-11 | Existing Northbound Volume Profiles for PM Peak Hour

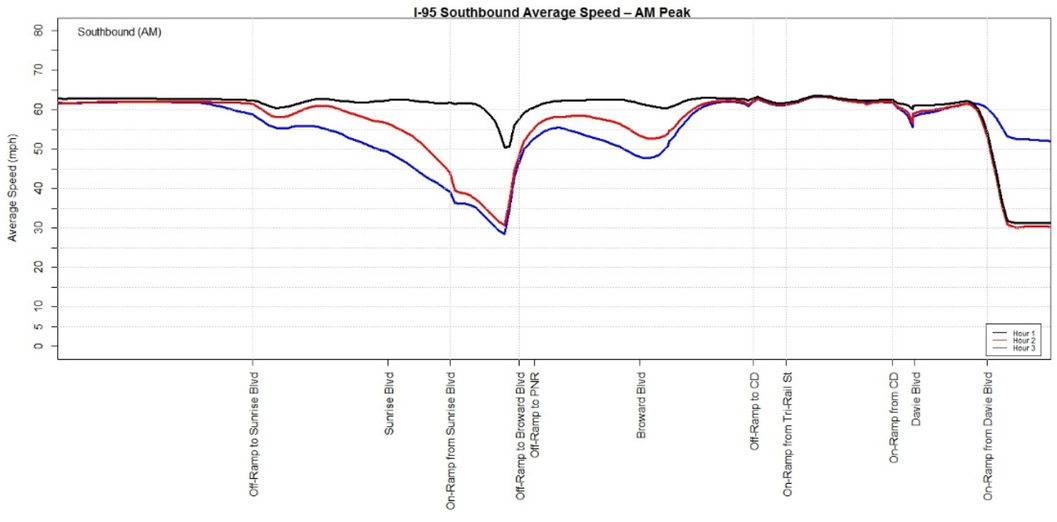


Figure 2-12 | Existing Southbound Average Speed Profiles for AM Peak Hour

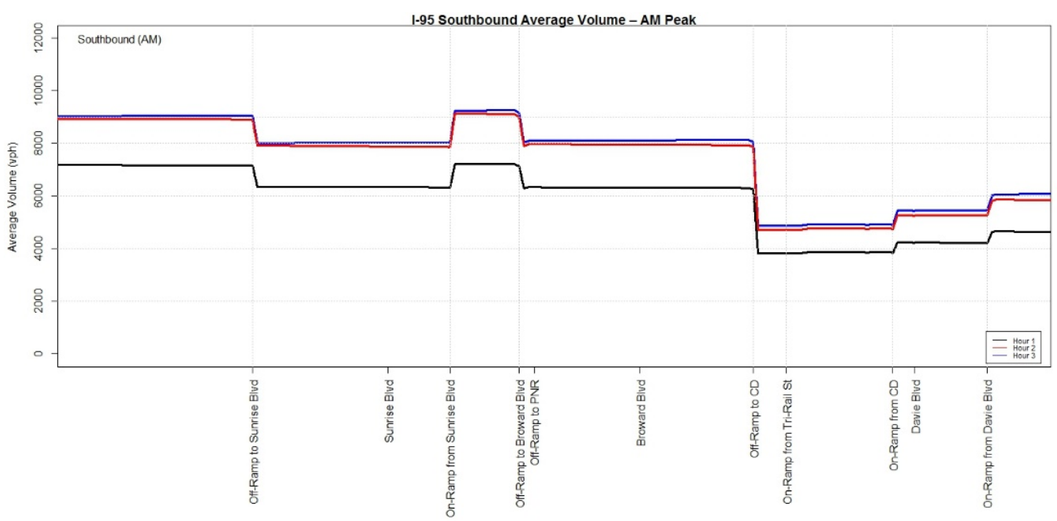


Figure 2-13 | Existing Southbound Volume Profiles for AM Peak Hour

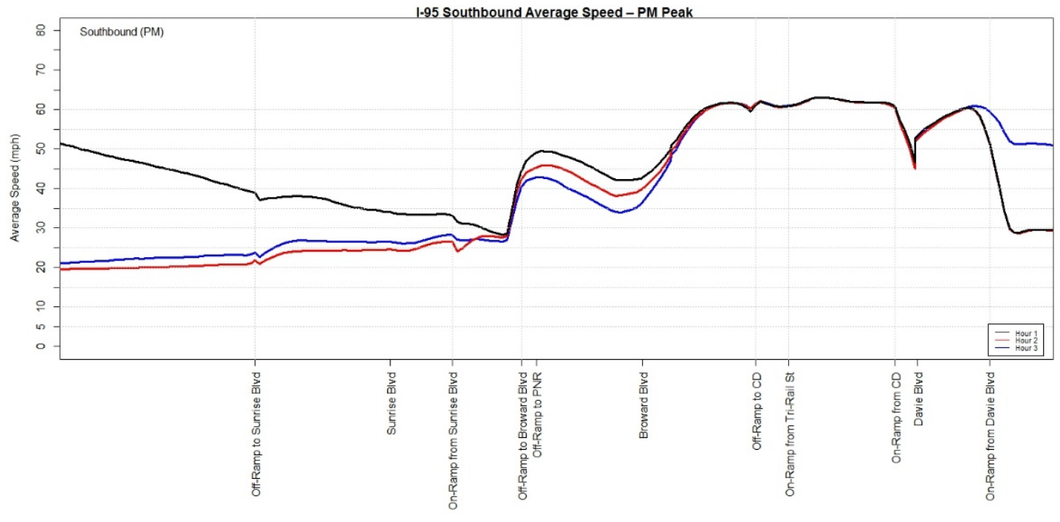


Figure 2-14 | Existing Southbound Average Speed Profiles for PM Peak Hour

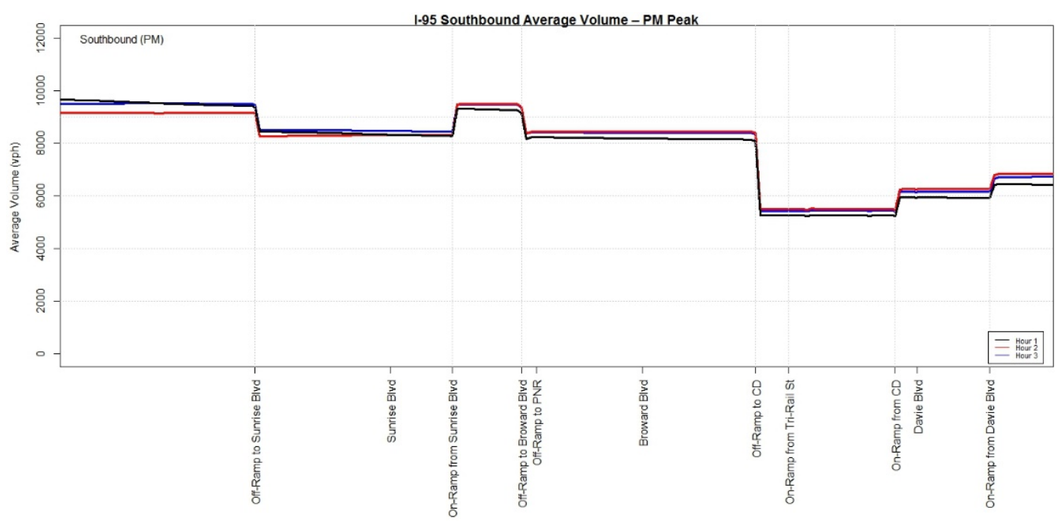


Figure 2-15 | Existing Southbound Volume Profiles for PM Peak Hour

2.15 Existing ITS Conditions

The existing ITS devices within the study limits on I-95, Broward Boulevard, and the Broward Boulevard Park-and-Ride facility are currently operated, monitored, and managed from the FDOT District Four RTMC using the SunGuide software to control and monitor the existing ITS devices. Prior to the opening of the I-95 Express Lanes Phase 3A-1 project, District Six will operate the existing T-DMS, S-DMS and the CCTV cameras that are dedicated to those T-DMS and S-DMS within the study area however all ITS devices are maintained by District Four. District Four operates all other ITS devices within the study area, however upon final acceptance of the I-95 Express Lanes Phase 3A-1 project the District Four RTMC is expected to take over the operations of all ITS devices. Because of this, it is assumed that the FDOT District Four RTMC will operate all of the ITS devices within the study area. A separate AMS contract operates, manages, and maintains the ITS devices on Broward Boulevard however this is also done out of the FDOT District Four RTMC. The following is a description of all the existing ITS devices within the study area and the potential impacts on them for the proposed improvements as part of the Preferred Alternative. Note that the ITS devices on I-95 and in the Broward Boulevard Park-and-Ride described below are the devices that are to be installed/included as part of the I-95 Express Lanes Phase 3A-1 project.

3.0 Design Controls and Criteria

3.1 Design Controls

The project controls that were used in the alternatives development are shown in **Tables 3-1 to 3-3.**

Table 3-1 | Project Design Controls: Broward Boulevard

DESIGN CONTROL	VALUE	SOURCE
Functional Classification	Urban Principal Aterial	Straight Line Diagram
Context Class Classification	C:4 Urban General	
Design Speed	45 mph	2018 FDM (Table 201.4.1)

Table 3-2 | Project Design Controls: I-95

DESIGN CONTROL	VALUE	SOURCE
Functional Classification	Urban Principal Aterial	Straight Line Diagram
Design Speed	65 mph 70 mph (SIS Facility)	2018 FDM (Table 201.4.1)

Table 3-3 | Project Design Controls: I-95 Ingress/Egress Ramps

DESIGN CONTROL	VALUE	SOURCE
Design Speed	30 mph for Loop Ramps and Semi-Direct Connections. 35 mph for Outer Cloverleaf Connections 40 mph for Intermediate Portions of Long Ramps 50 mph for Direct Connections	2018 FDM (Section 201.4.1.1)

3.2 Design Criteria

The design criteria utilized in the preliminary design of the alternatives for this project are in conformance with the following publications and shown in **Tables 3-4 to 3-6**.

- Florida Design Manual (2018), Florida Department of Transportation, Part 1 and 2
- Drainage Manual, Florida Department of Transportation
- Structures Manual, Florida Department of Transportation
- Standard Plans for Road and Bridge Construction, Florida Department of Transportation

Table 3-4 | Design Criteria: Broward Boulevard

DESIGN ELEMENT	DESIGN CRITERIA	SOURCE
Lane Width (Minimum)	11 feet	2018 FDM (Table 210.2.1)
Pavement Cross Slopes	2% Min. 3.5% Max.	2018 FDM (Figure 210.2.1)
Median Width	22 feet	2018 FDM (Table 210.3.1)
Border Width (Minimum)	14 feet	2018 FDM (Table 210.7.1)
Minimum Sidewalk Width	6 feet	2018 FDM (Table 222.1.1)
Minimum Bike Lane Width	4 feet	2018 FDM (Section 223.2.1.1)
Horizontal Alignment		
Min. Length of Horizontal Curves	400 feet	2018 FMD (Table 210.8.1)
Max. Deflection Without Curve	1°00'00"	2018 FDM (Section 210.8.1)
Vertical Alignment		
Max Change in Grade Without Curve	0.007	2018 FDM (Table 210.10.2)
Min. Length of Crest Curve	135 feet	2018 FDM (Table 210.10.4)
Min. Length of Sag Curve	135 feet	2018 FDM (Table 210.10.4)
Min. Crest K-value	98	2018 FDM (Table 210.10.3)
Min. Sag K-value	79	2018 FDM (Table 210.10.3)

Table 3-5 | Design Criteria: I-95 Mainline

DESIGN CONTROL	VALUE	SOURCE/REMARK
Lane Width (Minimum)	12 feet 11 feet (SIS Facility)	2018 FDM (Section 211.2) 2018 FDM (Table 210.2.1)
Pavement Cross Slopes	2% Min. 3.5% Max.	2018 FDM (Figure 211.2.1)
Median Width	64 feet (Without Barrier) 26 feet (With Barrier)	2018 FMD (Table 211.3.1)
Express Lane Separation	4 feet Min. Buffer	2018 FDM (Figure 211.3.2)
Shoulder Width (Minimum)	12 feet (10 feet paved) Travel Lanes 12 feet Express Lanes	2018 FDM (Table 211.4.1)
Vertical Clearance	16.5 feet (Over Roadway) 23.5 feet (Over Railroad) 24.25 feet (Over Electrified Railroad)	2018 FDM (Table 260.6.1)
Grades	3% Max.	2018 FDM (Table 211.9.1)
Superelevation	10% Max.	2018 FDM (Section 210.9.1)
Border Width (Minimum)	10 feet	2018 FDM (Section 211.6.1)
Horizontal Alignment		
Min. Length of Horizontal Curves	975 feet	2018 FMD (Table 211.7.1)
Max. Deflection Without Curve	0°45'00"	2018 FDM (Section 211.7.1)
Exit Ramp Taper Angle	4° +/-	2018-19 Standard Plans (Index 000-525)
Ramp Entrance Taper Length	1:50	2018-19 Standard Plans (Index 000-525)
Lane Drop Taper	1:50 Min. 1:70 Desirable	AASHTO 2011 (Pg. 10-157)

Table 3-6 | Design Criteria: I-95 Express Lanes Ingress/Egress Ramps and NB/SB Service Interchange Ramps

DESIGN ELEMENT	DESIGN CRITERIA	SOURCE
Lane Width (Minimum)	15 feet (One Lane) 12 feet (Two or More)	2018 FDM (Section 211.2.1)
Pavement Cross Slopes	2% Min. 3% Max.	2018 FDM (Figure 211.2.1)
Shoulder Width (Minimum)	6 feet (4 paved) 1-Lane Right 6 feet (2 paved) 1- Lane Left 10 feet (8 paved) 2-Lane Non-Interestate Right 8 feet (4 paved) 2-Lane Non-Interstate Left 12 feet (10 paved) 2-Lane Interstate 8 feet (4 paved) 2-Lane Interstate	2018 FDM (Table 211.4.1)
Border Width (Minimum)	10 feet	2018 FDM (Section 211.6.1)
Superelevation	10% Max.	2018 FDM (Section 210.9.1)
Grades	5% Max. (45-50 mph) 6% Max. (35-40 mph) 7% Max. (25-30 mph)	2018 FDM (Table 211.9.1)
Vertical Clearance	16.5 feet (Over Roadway) 23.5 feet (Over Railroad) 24.25 feet (Over Electrified Railroad)	2018 FDM (Table 260.6.1)
Horizontal Alignment		
Min. Length of Horizontal Curves	400 feet	2018 FMD (Table 211.7.1)
Max. Deflection Without Curve	Design speed ≤ 40 mph is 2°00'00" Design speed ≥ 45 mph is 0°45'00"	2018 FDM (Section 211.7.1)
Exit Ramp Taper Angle	4° +/-	2018-19 Standard Plans (Index 000-525)
Ramp Entrance Taper Length	1:50	2018-19 Standard Plans (Index 000-525)
Lane Drop Taper	1:50 Min. 1:70 Desirable	AASHTO 2011 (Pg. 10-157)
Vertical Alignment		
Max Change in Grade Without Curve	30 mph 1.00% 35 mph 0.90% 40 mph 0.80% 45 mph 0.70%	2018 FDM (Table 210.10.2)
Min. Length of Crest Curve	30 mph - 90 feet 35 mph - 105 feet 40 mph - 120 feet 45 mph - 135 feet	2018 FDM (Table 211.9.3)
Min. Length of Sag Curve	30 mph - 90 feet 35 mph - 105 feet 40 mph - 120 feet 45 mph - 135 feet	2018 FDM (Table 211.9.3)
Min. Crest K-value	30 mph 31 35 mph 47 40 mph 70 45 mph 98	2018 FDM (Table 211.9.2)
Min. Sag K-value	30 mph 37 35 mph 49 40 mph 64 45 mph 79	2018 FDM (Table 211.9.2)

4.0 Alternatives Analysis

Evaluation of transportation projects to select the most desirable alternative is often based on a wide range of criteria (i.e., traffic operations and safety, environmental impacts, construction costs, drainage impacts, right-of-way costs, etc.) that reflect concerns of all the key stakeholders. Three improvement build alternatives were considered for improving traffic operations and safety near the I-95/Broward Boulevard interchange. The following sections summarize the No-Action, and TSM&O alternatives and the evaluation and elimination of alternatives.

4.1 No-Action Alternative

I-95 in the study area is a ten-lane facility with four GP travel lanes and one existing former HOV lane in each direction. Within the study limits, and at the interchange itself, there are numerous access ramps. The FDOT is currently implementing Phase 3 of the 95 Express Lanes continuing 29 miles north from Stirling Road in Broward County to Linton Boulevard in Palm Beach County. The 95 Express Phase 3A project consists of dual express lanes made up of the former HOV lane with the addition of a new lane each direction.. The resulting typical section becomes a 12-lane facility comprised of four GP Lanes and two Special Use Lanes in each direction. The No-Action Alternative includes the 95 Express 3A-1 for the I-95 mainline and the Interchange Operational Analysis Report (IOAR) approved improvement for the Sunrise Boulevard west terminal ramp intersection.

4.2 TSM&O Alternative

In addition to the No-Action Alternative, The Transportation Systems Management and Operations (TSM&O) Alternative was considered. The TSM&O Alternative incorporates the use of Adaptive Traffic Signal Control (ATSC) and Advanced Transportation Management System (ATMS). ATMS is a system of ITS for the arterials (non-freeway). It includes a Fiber optic Network, CCTV Monitoring, Dynamic Messaging Signs and Speed/Volume Monitoring Devices. The TSM&O Alternative alone does not meet the purpose and need of the project, however all the components of the TSM&O Alternative are included in all of the Build Alternatives.

4.3 Build Alternatives

The proposed improvements evaluated for the I-95 at Broward Boulevard Interchange consisted of four elements:

1. Improvements to the mainline of I-95 to accommodate ingress and egress ramps for 95 Express and the existing Broward Boulevard Interchange ramps,
2. Three alternatives for the Broward Boulevard east and west terminal intersections to improve interchange operations,
3. Two options for the eastbound Broward Boulevard to southbound 95 Express movement, and
4. Conceptual plans for the Park-and-Ride lot to improve circulation and conditions for all users.

The mainline improvements are consistent across each of the three interchange alternatives. Each of the Park-and-Ride concepts was designed to work with the proposed mainline and interchange improvements.

4.3.1 Mainline I-95 Build Alternative

The proposed improvements to the mainline account for the programmed implementation of 95 Express, which adds one additional Special Use Lane in each direction and modifies the use of these lanes to include dual express lanes. The resulting typical section becomes a 12-lane facility comprised of four GP Lanes and two Special Use Lanes in each direction.

The primary proposed improvements for the mainline, which are shown in **Figures 4-1 and 4-2**, are for the new ramps providing ingress and egress to the 95 Express lanes.

- In the southbound egress direction, the proposed improvements include a braided ramp over the southbound I-95 General Use Lanes with a connection to the west ramp terminal intersection of the Broward Boulevard service interchange to provide egress from 95 Express near NW 6th Street/Sistrunk Boulevard.
- Similarly in the southbound ingress direction, there is a braided ramp over the southbound I-95 General Use Lanes located just south of Broward Boulevard that provides ingress access for the westbound traffic on Broward Boulevard. This elevated braided ramp provides direct access via the west ramp terminal intersection of the Broward Boulevard service interchange. The westbound left-turn at the west ramp terminal intersection feeds directly into the southbound express lane ramp and does not require drivers to weave through the General Use Lanes.
- To access SB 95 Express from eastbound Broward Boulevard, motorists use SW 1st Street, from SW 22nd Avenue, to access the existing former HOV SB entrance ramp at the south side of the Park-and-Ride Lot just south of Broward Boulevard. Along SW 1st Street, the residential road of SW 22nd Avenue is converted to right in/right out from eastbound SW 1st Street. The stop-controlled intersection at SW 21st Terrace and the signalized intersection immediately east of that are converted to a single roundabout.
- For the northbound direction, egress from 95 Express near Davie Boulevard is proposed through the use of a braided ramp over the northbound I-95 General Use Lanes with a connection to the northbound CD road ramp system that terminates at the east terminal intersection of the Broward Boulevard service interchange. This elevated braided ramp provides eastbound and westbound Broward Boulevard access to northbound 95 Express without requiring drivers to weave through the General Use Lanes.
- Ingress from the Broward Boulevard service interchange to the northbound 95 Express lanes is proposed through a braided ramp over the northbound I-95 General Use Lanes in the vicinity of NW 6th Street/Sistrunk Boulevard. This elevated braided ramp provides direct access between Broward Boulevard and the northbound Express Lanes, using the existing eastbound to northbound flyover, and westbound to northbound ramp, for access to northbound 95 Express without requiring drivers to weave through the General Use Lanes.

4.3.2 Broward Boulevard Interchange Build Alternatives

The proposed improvements to Broward Boulevard include the replacement of the bridge that spans I-95 and the South Florida Rail Corridor with a wider and higher bridge span, the provision of three through lanes of traffic with seven foot wide bicycle lanes in each direction, six foot wide sidewalks which transition to eight foot barrier protected sidewalk along the north side of the bridge spanning over South Florida Rail Corridor, and along the north and south of the bridge spanning over I-95, and three interchange alternatives, which are further described below. The replacement of this bridge span is common to all three interchange alternatives and is being proposed to accommodate necessary turn lanes at the intersections as well as to provide an envelope for a future premium transit stop with connectivity between East-West service along Broward Boulevard, and the many multi-modal transit service provided in the Broward Boulevard Park-and-Ride Lot/Transit Station on the north and south sides of Broward Boulevard In each of the interchange alternatives the service interchange ramps are proposed for reconstruction to accommodate the wider and higher proposed bridge span. Most of the ingress and egress ramps are also proposed to include additional lanes to accommodate the forecasted 2040 year traffic.

The proposed interchange alternatives include Tight Diamond, Displaced Left Turn, and Modified Displaced Left Turn. Each of these alternatives is described below. For each of these alternatives the northbound ingress to I-95 remains as a single lane access ramp.

4.3.2.1 Interchange Build Alternative 1 – Tight Diamond

The Tight Diamond Interchange is a compressed version of the diamond interchange designed to accommodate right-of-way constraints. The interchange consists of two closely spaced signalized intersections at the crossing of the ramp terminals. The key operational aspect of a Tight Diamond Interchange is signal coordination to ensure efficient progression of traffic and minimum storage of vehicles between the terminals. The existing interchange is a Tight Diamond Interchange and this alternative will improve the existing operation through the addition of turn lanes at the ramp terminal locations and optimization of the intersection signal timings. Specifically, one additional left turn lane is proposed for southbound ingress from Broward Boulevard to I-95 resulting in triple left turn lanes for traffic traveling westbound. An additional right turn lane is also proposed resulting in double right turn lanes for eastbound traffic on Broward Boulevard There are no proposed improvements to the northbound ingress ramps from Broward Boulevard These improvements are illustrated in **Figure 4-3**.

4.3.2.2 Interchange Build Alternative 2A – Displaced Left

The Displaced Left Turn Interchange is also known as the Continuous Flow Interchange. The main geometric feature of the Displaced Left Turn Interchange is the removal of left turn movements from the main intersection to an upstream signalized location to reduce the number of traffic signal phases and conflict points. For this alternative the westbound left turn movements are displaced at the east ramp terminal intersection to a new roadway that is south and runs parallel to the eastbound through lanes where it combines with the displaced left turn lanes from the northbound ramp. This configuration enables the westbound left turn lanes to execute the left turn simultaneously with the westbound through traffic and under a different signal phase also transition the traffic from the northbound ramp on to the westbound at the west ramp terminal intersection. This proposed alternative increases the number of right turn lanes for the southbound ingress to I-95 from eastbound Broward Boulevard, resulting in dual

right turn lanes. Although displaced as previously described, the left turn lanes for southbound ingress remain as dual left turn lanes as is currently provided. These improvements are illustrated in **Figure 4-4**.

4.3.2.3 Interchange Build Alternative 2B – Modified Displaced Left

The Modified Displaced Left Turn Interchange alternative provides for the displacement of the northbound exit ramp onto a new roadway (bridge structure) that is on the south of Broward Boulevard over I-95, and runs south of and parallel to the eastbound Broward Boulevard through lanes. The northbound ramp left-turn traffic is then transitioned on to the westbound Broward Boulevard roadway at the west ramp terminal intersection.

This alternative differs from Alternative 2A in that there are three westbound left-turn lanes at the west ramp terminal intersection. The inner left-turn lane is a barrier separated direct connect to 95 Express and the outer two left-turn lanes are for general use that feed to the southbound CD road. Note the eastbound traffic destined to the southbound 95 Express lanes cannot use the eastbound right turn at the ramp terminal; the traffic must use existing former HOV ramps. This design separates the westbound express lane traffic from the westbound CD road traffic and eliminates the short weave between the westbound left-turn and the eastbound right-turn on the CD. **Figure 4-5** illustrates the Modified Displaced Left-Turn Alternative. Alternatives for the eastbound to southbound express lane traffic are provided in Section 4.3.3.

Figure 4-1 | 95 Express Ingress-Egress Connections with Broward Boulevard Interchange

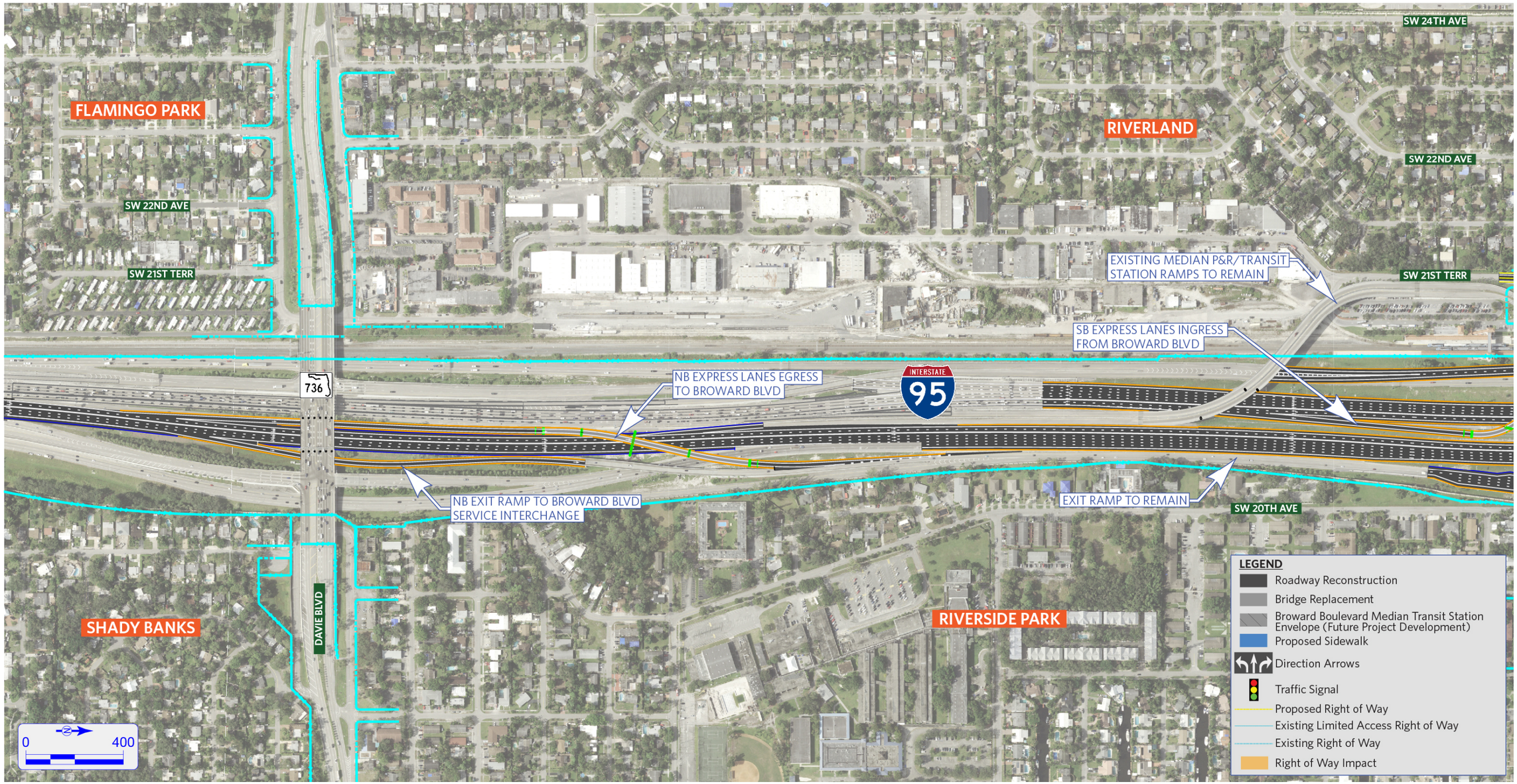


Figure 4-2 | 95 Express Ingress-Egress Connections with Broward Boulevard Interchange

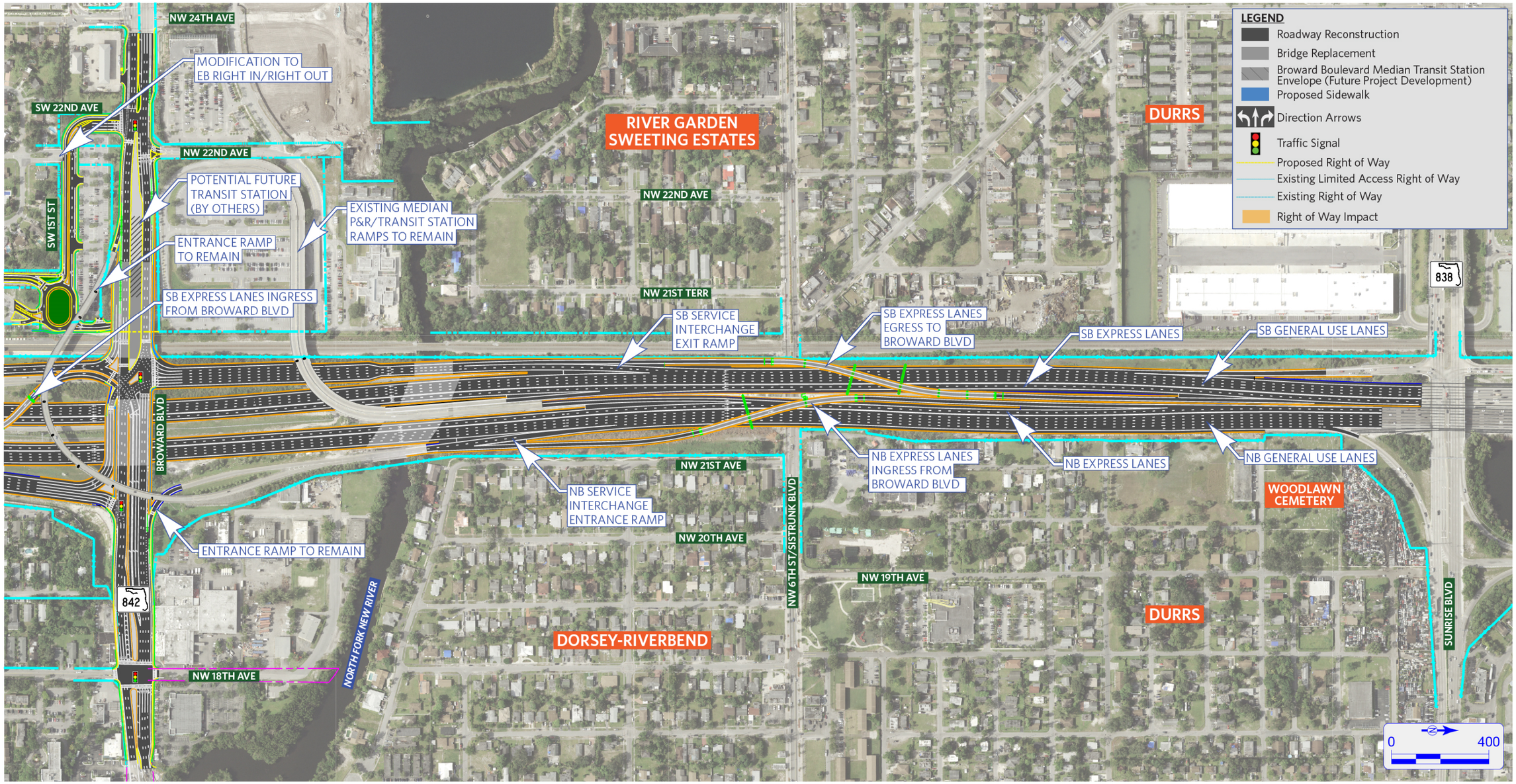


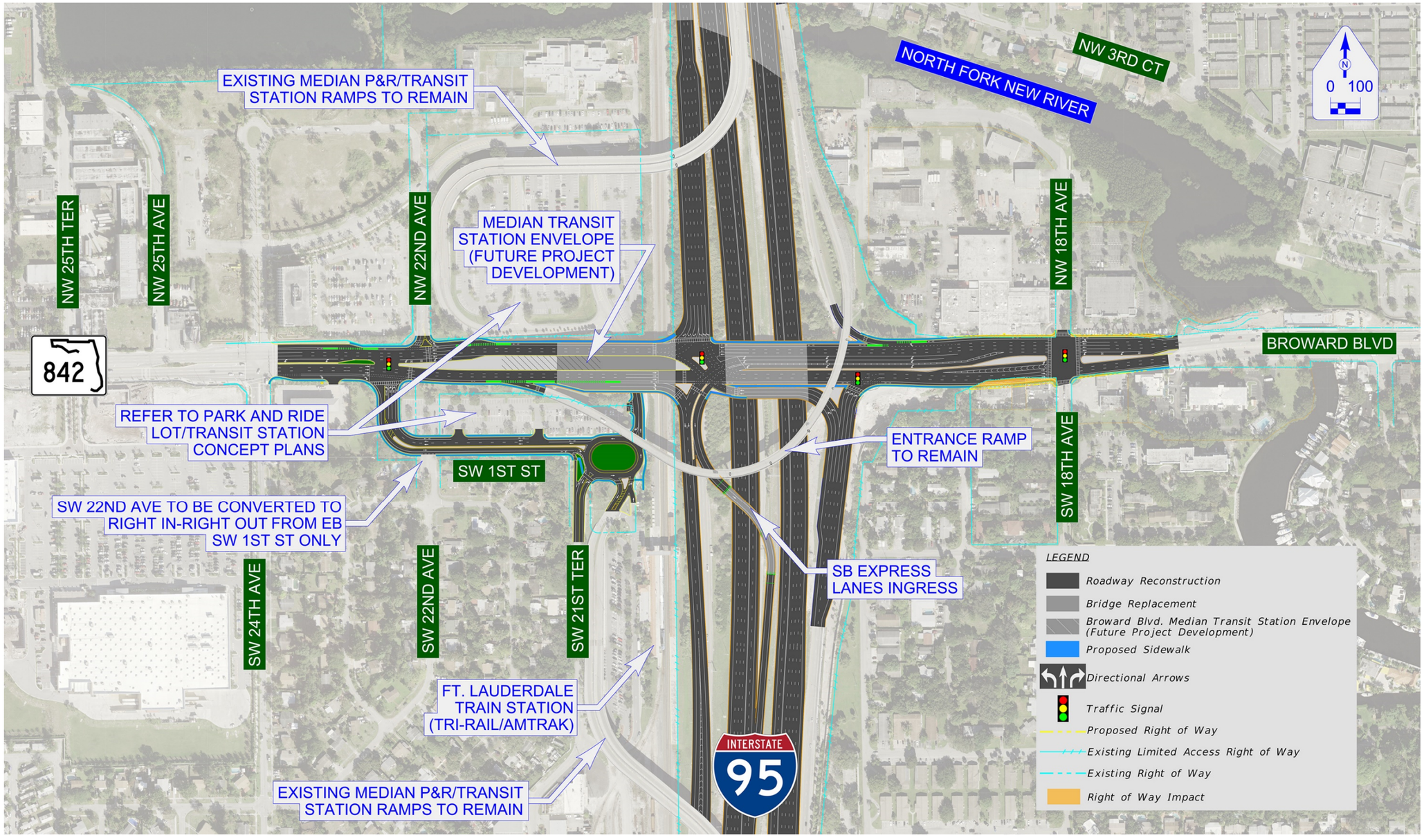
Figure 4-3 | Alternative 1 – Tight Diamond



Figure 4-4 | Alternative 2A – Displaced Left



Figure 4-5 | Alternative 2B – Modified Displaced Left



4.3.3 Broward Boulevard Eastbound to Southbound 95 Express Alternatives

In the preferred Broward Boulevard Build Alternative (Build Alternative 2B), there is a barrier separation on the southbound CD road (SW 20th Terrace) that restricts Broward Boulevard eastbound right-turn traffic from entering the express lanes via the new braided ramp. Thus, the eastbound traffic on Broward Boulevard destined to the I-95 southbound express lanes must use an alternative route. The SW 1st Street Alternatives (Option 1) and the Flyover Alternative (Option 2) was developed to accommodate the future year traffic and facilitate a functional route for Broward Boulevard eastbound to southbound express lane traffic. The total volume of eastbound motorists seeking access to southbound 95 Express in 2040 is 258 vehicles in the AM peak and 267 vehicles in the PM peak.

4.3.3.1 Option 1 – Broward Boulevard Eastbound to Southbound Express Lane Traffic via SW 1st Street

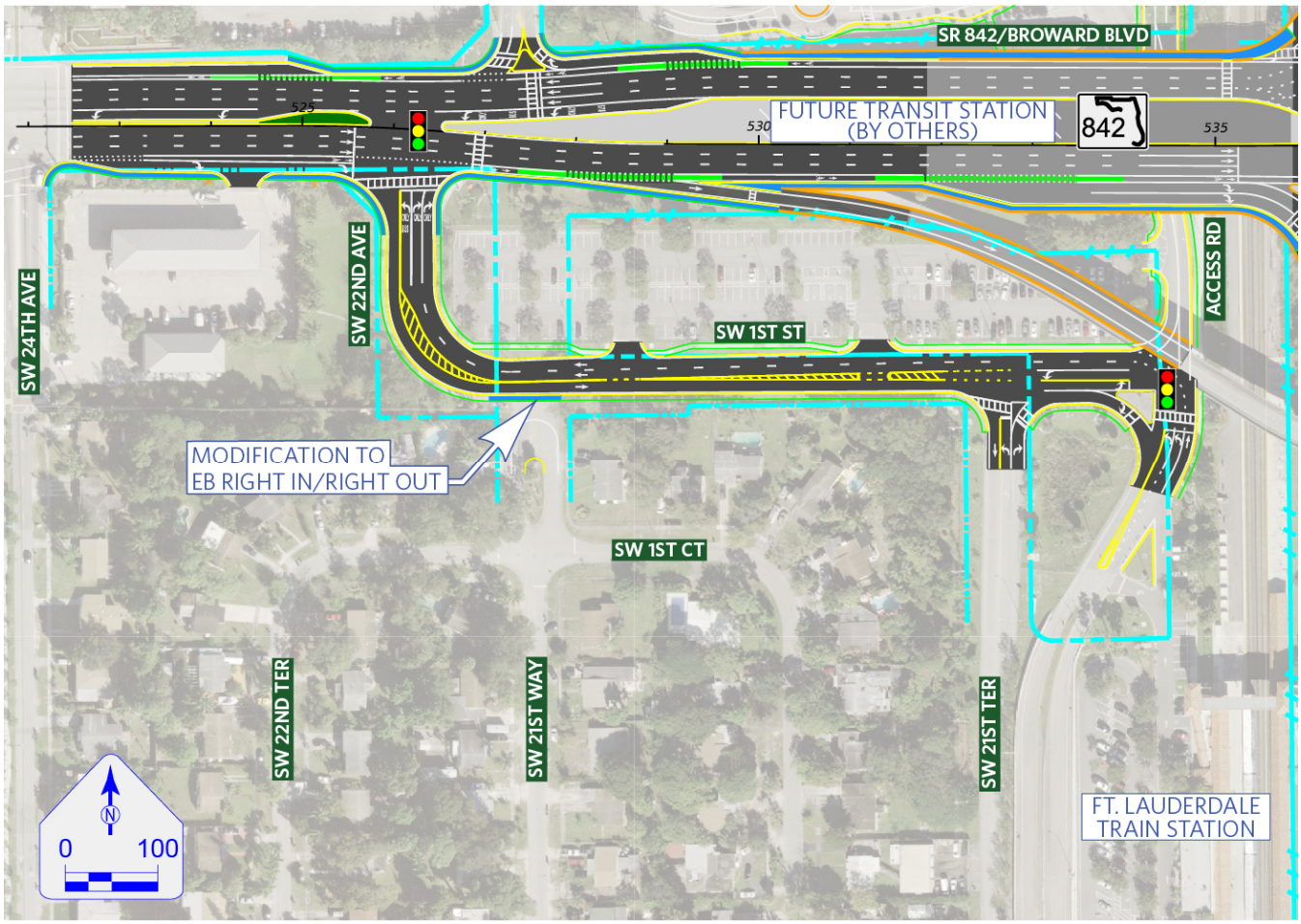
In this option, eastbound to southbound express lane traffic must continue to use the existing former HOV ramps via SW 1st Street. On SW 1st Street, there is an existing stop control intersection at SW 21st Terrace and an existing signal approximately 200 feet east of SW 21st t Terrace at the Park and Ride Access Road. A traffic analysis was conducted to evaluate different control types at those two intersections. Four alternatives with different control types were developed. To be conservative and consistent in analysis, all alternatives (including No-Action) assume the residential road SW 22nd Avenue is converted to right in/right out from eastbound SW 1st Street. The four alternatives evaluated are:

- Alternative 1 – No-Action
- Alternative 2 – T-Intersection at SW 21st Terrace and Roundabout at Access Road
- Alternative 3 – Double Roundabout
- Alternative 4 – Combined Roundabout

Alternative 1 – No-Action

This alternative assumes the existing geometry on SW 1st Street. The westbound direction is maintained as two lanes and the eastbound direction is maintained as one lane to SW 21st Terrace where it then becomes a left-turn and a right-turn lane. The No-Action Alternative is illustrated in **Figure 4-6**.

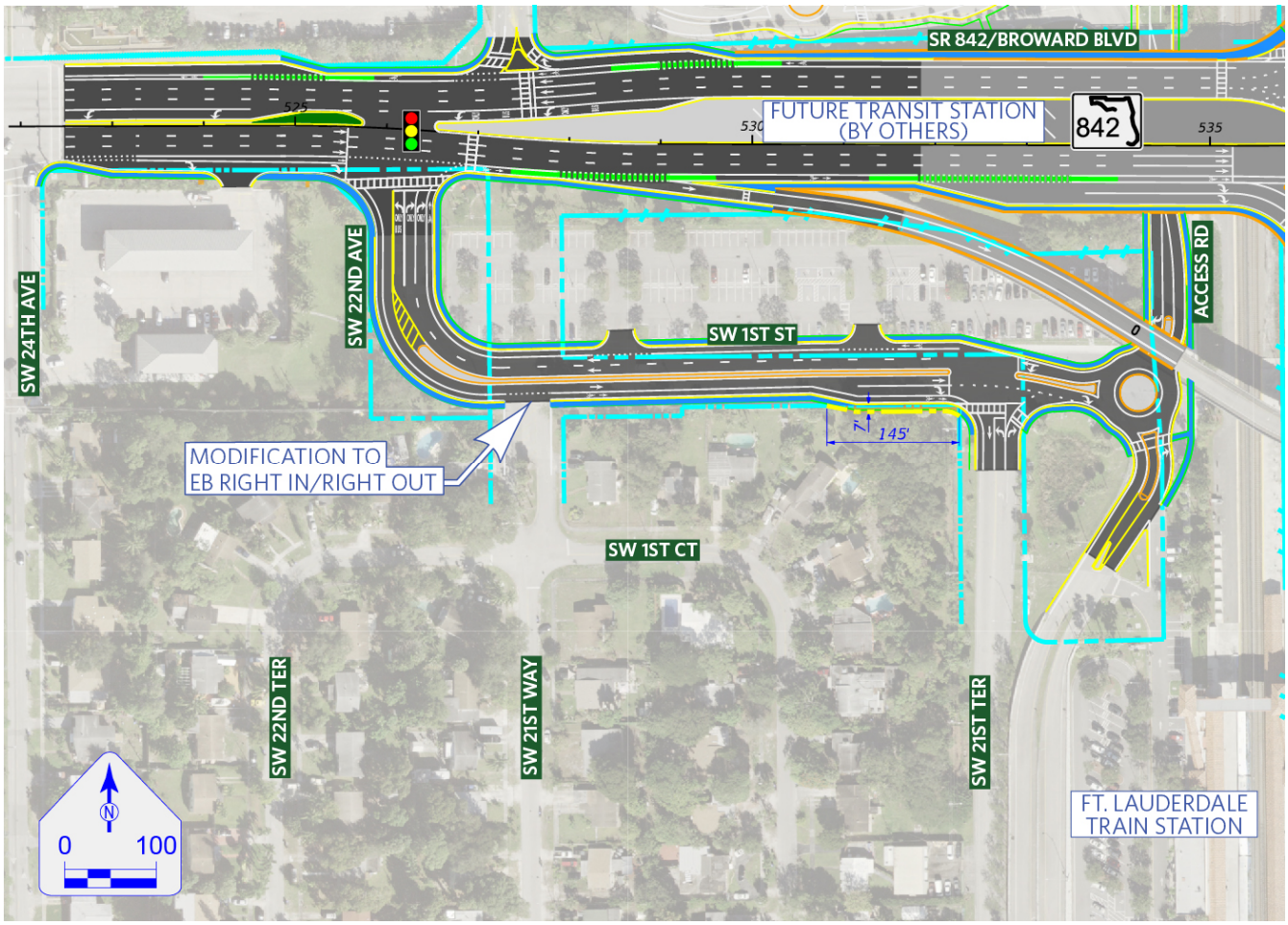
Figure 4-6 | SW 1st Street Alternative 1 – No-Action



Alternative 2 – T-Intersection and Roundabout

This alternative keeps the SW 21st Terrace intersection as stop control but converts the east signalized intersection to a single-lane roundabout. The eastbound section on SW 1st Street between SW 21st Terrace and the roundabout is reduced to one lane to facilitate a single-lane roundabout entry. The eastbound direction maintains one lane from SW 22nd Avenue to SW 21st Terrace and the westbound direction maintains two lanes from SW 21st Terrace to SW 22nd Avenue. There is also an eastbound right-turn lane added on SW 1st Street for vehicles to access SW 21st Terrace. These improvements are illustrated in **Figure 4-7**.

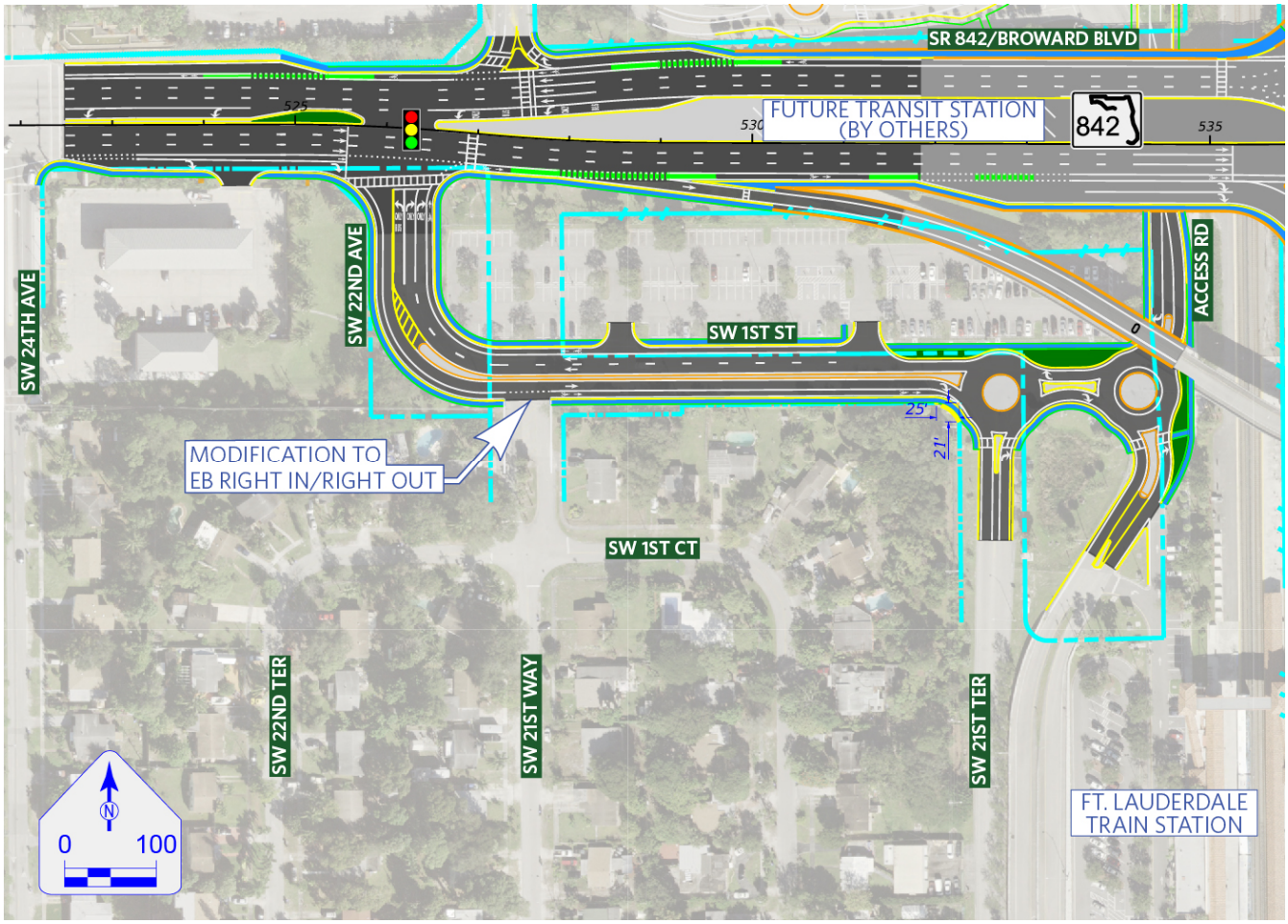
Figure 4-7 | SW 1st Street Alternative 2 – T-Intersection and Roundabout



Alternative 3 – Double Roundabout

This alternative converts the intersection of SW 21st Terrace and the existing east signalized intersection to single-lane roundabouts. The section of SW 1st Street between the two junctions is reduced to one lane in each direction to facilitate single-lane roundabout entries. The eastbound direction maintains one lane from SW 22nd Avenue to SW 21st Terrace and the westbound direction maintains two lanes from SW 21st Terrace to SW 22nd Avenue. These improvements are illustrated in **Figure 4-8**.

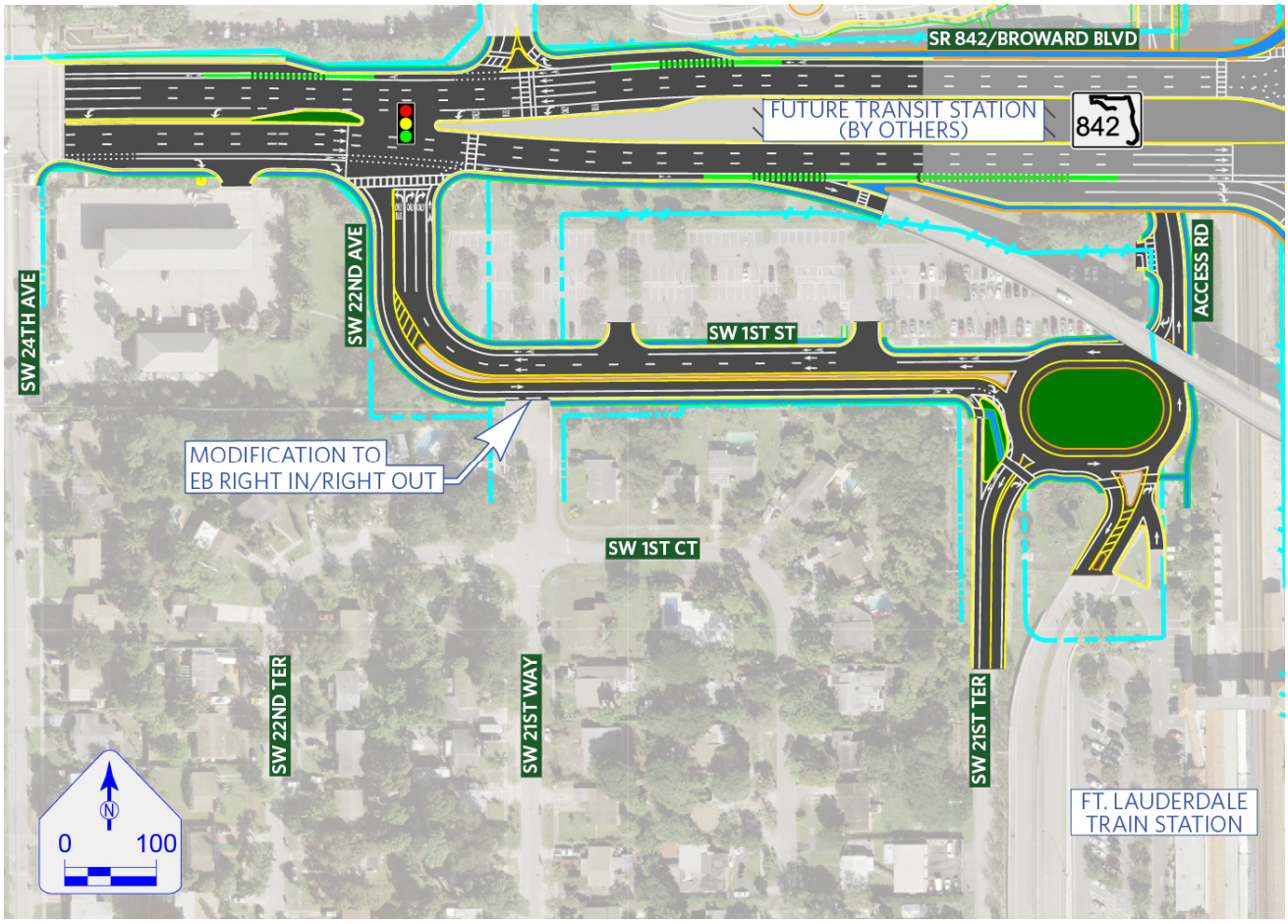
Figure 4-8 | SW 1st Street Alternative 3 – Double Roundabout



Alternative 4 – Combined Roundabout

This alternative combines the intersection of SW 21st Terrace and the existing east signalized intersection into one roundabout. This design eliminates the need for two roundabouts (described in Alternative 3) by bringing all approach movements from the two intersections into a single roundabout. The roundabout is designed to accommodate transit vehicles exiting the Park-and-Ride lot. These improvements are illustrated in **Figure 4-9**.

Figure 4-9 | SW 1st Street Alternative 4 – Combined Roundabout



4.3.4 Park-and-Ride Lot Build Alternatives

Three concept alternatives were developed to address vehicular circulation through the northern lots, also referred to as Lots 1, 2, and 3 in the figure provided. Each of the alternatives includes a realignment of Access Road to provide for a straighter geometry and adjusts the parking areas and other roadway connections as necessary. Specifically, the parking spaces provided in Lot 3 will be shifted west and accommodated in the area currently identified as Lots 1 and 2. Each alternative also provides additional sidewalk throughout the northern parking areas, identifies crosswalks, and proposes a canopy for the sidewalks connecting the train station to the newly created area underneath the expanded Broward

Boulevard bridge structure. The primary difference between these alternatives is the proposed location of the 95 Express Bus stops and the use of the newly created space underneath the expanded Broward Boulevard bridge structure. These alternatives are concepts and the details of the improvements will be determined as part of the Design phase of the project.

4.3.4.1 Park-and-Ride Design Controls

Bus-45 was the design vehicle used in the Park-and-Ride alternatives development.

4.3.4.2 Park-and-Ride Alternative 1

The 95 Express Bus stop in the northern parking area is retained in its current location and a Kiss-and-Ride facility is provided on the opposite side of the existing bus stop. The 95 Express Bus stops currently located on Access Road just south of the Broward Boulevard bridge structure are relocated north to allow for passenger loading underneath the expanded bridge structure. A traffic signal is proposed at the intersection of Access Road with the roadway that provides ingress and egress from I-95 on the north side of the parking area to accommodate left turns by transit vehicles. The additional space provided underneath the bridge structure is not identified for any specific use aside from being reserved to accommodate an elevator and other access features to allow for a transfer between the possible future transit station in the median of Broward Boulevard and this lower level. These concepts are illustrated in **Figure 4-10**.

4.3.4.3 Park-and-Ride Alternative 2

In this alternative the 95 Express Bus stop in the northern parking area is shifted south to the east-west access road between the two parking areas, and a Kiss-and-Ride facility is provided on the east-west access road that becomes the I-95 ingress and egress ramps. At the terminus of the I-95 ramps in the northern lot a roundabout is proposed in lieu of the existing three-sided intersection. The area underneath the expanded bridge structure is proposed to be used for the 95 Express Bus stops currently located just south of the bridge structure. This concept provides for a more formal transit boarding and alighting area. These concepts are illustrated in **Figure 4-11**.

4.3.4.4 Park-and-Ride Alternative 3

In this alternative, the 95 Express Bus stop is shifted south to the north-south access road, and retains the location of the Kiss-and-Ride facility as well as the proposed roundabout in the northern lot. A roundabout to access the formal transit station area created underneath the expanded bridge structure is proposed to further facilitate bus access to the transit station area. These concepts are illustrated in **Figure 4-12**.

Figure 4-10 | Alternative 1 – With I-95 at Broward Boulevard Interchange Modified Displaced Left Alternative

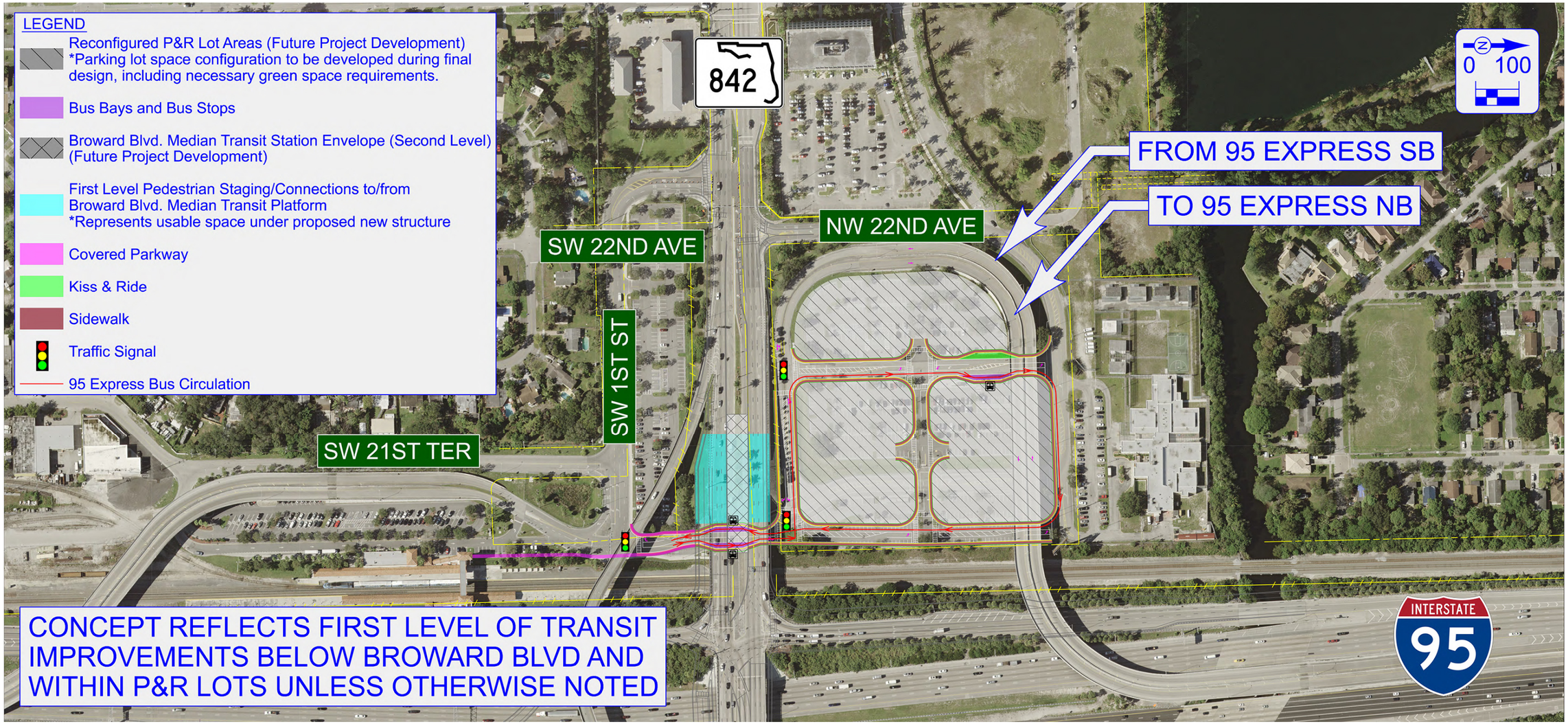


Figure 4-11 | Alternative 2 – With I-95 at Broward Boulevard Interchange Modified Displaced Left Alternative

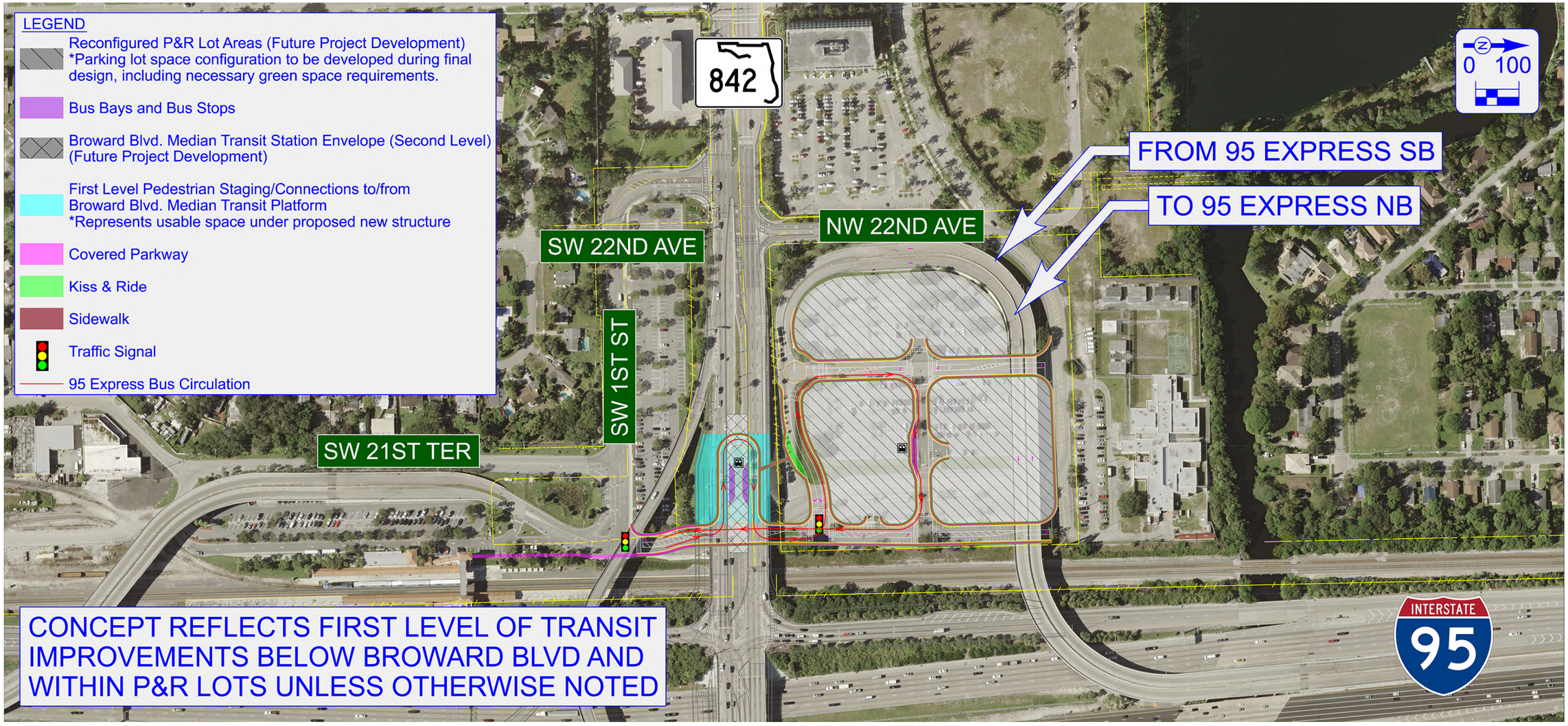
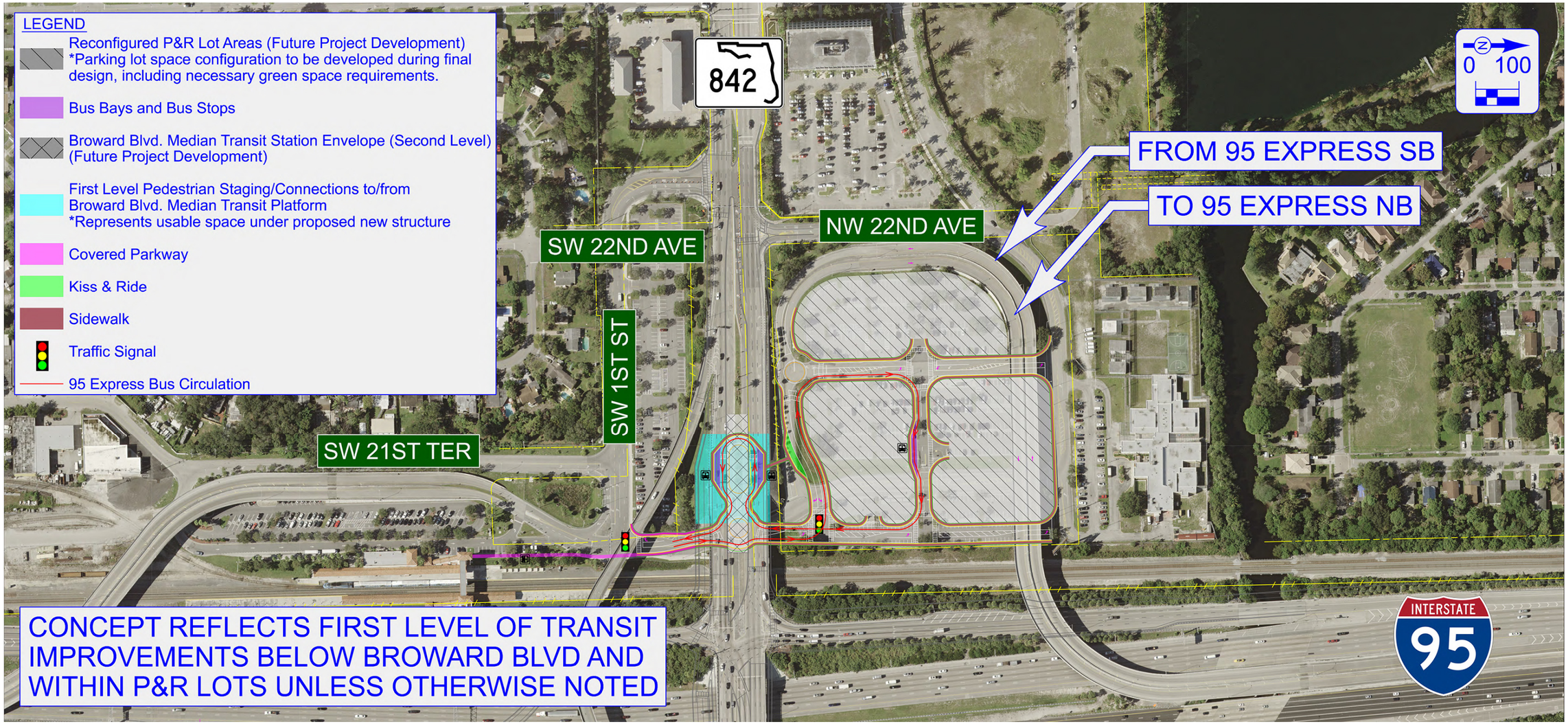


Figure 4-12 | Alternative 3 – With I-95 at Broward Boulevard Interchange Modified Displaced Left Alternative



4.4 Future Conditions Analysis

4.4.1 No-Action 2020 and 2040 Peak Hour Traffic Development

Various traffic forecasting methodologies were evaluated and appropriate growth rates were developed from historical Average Annual Daily Traffics (AADT) and Southeast Florida Regional Planning Model (SERPM) model volumes. After reviewing growth rates from the various traffic forecasting methodologies and considering the residential land use north and south of the study corridor, a compound growth factor of 0.58% was applied to Broward Boulevard. A compound growth factor of 0.50% was applied to Davie Boulevard, all other cross streets, I-95 and the CD ramps.

The existing peak-to-daily ratios were calculated based on actual field data. The future K factors for AM and PM peak periods were increased to 9.0% (standard K) for the segment with the higher K factor. Other future design year K factors were also adjusted, while maintaining the same differences between the field K factor and the higher K factor at each intersection. The future D factors were adjusted to the range between 50.8% and 67.1%, as recommended in FDOT's 2014 Project Traffic Forecasting Handbook.

AADT volumes from the recently completed I-95 at Sunrise Boulevard IOAR study were used as control totals and the rest of the AADTs for the I-95 mainline were developed by adding or subtracting ramp AADT volumes from the Broward Boulevard or Davie Boulevard interchanges. AADT volumes for 2020 and 2040 were developed in a similar manner. Since traffic counts were not collected for I-95, data from sources such as the 2015 Florida Traffic Information DVD, I-95 ITS detector data, and the I-95 at Broward Boulevard Interchange Concept Development Report (CDR) was obtained and checked for consistency, accuracy, and reasonableness of estimated AADT volumes. Existing Year 2016 AADTs and Future Year 2020 and 2040 AADTs are displayed in **Figure 4-13** through **Figure 4-15.**

Peak hour traffic volumes were estimated using FDOT District 4 TMTOOL (Version 2.0) with the AADT volumes and the design factors. Adjustments were made to ensure volumes are balanced throughout the corridor. AM and PM peak hour traffic volumes are displayed in **Figure 4-16** through **Figure 4-21**.

4.4.2 Build 2020 and 2040 Peak Hour Traffic Development

Traffic volumes developed for the No-Action Alternative (as discussed previously) were used to determine the traffic volumes for the Build Alternative. The No-Action traffic volumes were redistributed to establish traffic volumes for the Build alternative. The Build Alternative includes following changes when compared to the No-Action Alternative.

- Broward Boulevard interchange and Sunrise Boulevard interchanges were reconfigured based on the recommendations from the alternative analysis. Additional information regarding the Preferred Alternative is provided in Chapter 5 of the SIMR. The No-Action traffic volumes were redistributed to establish traffic volumes for the reconfigured movements.
- In addition, the Build Alternative for the Broward Boulevard interchange includes direct connect ramps between the 95 Express Lanes and Broward Boulevard. SERPM model was utilized to

determine the ramp split percentages between direct connects and the service ramps. These split percentages were applied to the No-Action traffic volumes for the service ramps to obtain traffic volumes for the Broward Boulevard direct connect ramp volumes in the Build Alternative. Split percentages are provided in **Table 4-1**.

Table 4-1 | SERPM Model Traffic Split Percentages for Broward Boulevard Direct Connects

AM Peak Period				
Direct Connect Location	Direction	EL Split	GP Split	Comments
South of Broward Boulevard	Southbound On-Ramp	43%	57%	% of traffic entering into the SB EL lanes from Broward
	Northbound Off-Ramp	35%	65%	% of I-95 traffic exiting to Broward from NB EL lanes
North of Broward Boulevard	Southbound Off-Ramp	28%	72%	% of traffic exiting to Broward from SB EL lanes
	Northbound On-Ramp	26%	74%	% of traffic entering into NB EL lanes from Broward
PM Peak Period				
Direct Connect Location	Direction	EL Split	GP Split	Comments
South of Broward Boulevard	Southbound On-Ramp	51%	49%	% of traffic entering into the SB EL lanes from Broward
	Northbound Off-Ramp	33%	67%	% of I-95 traffic exiting to Broward from NB EL lanes
North of Broward Boulevard	Southbound Off-Ramp	23%	77%	% of traffic exiting to Broward from SB EL lanes
	Northbound On-Ramp	29%	71%	% of traffic entering into NB EL lanes from Broward

The 2020 and 2040 peak hour volumes for the Build Alternative are illustrated in **Figure 4-22** through **Figure 4-27**.

Figure 4-13 | Forecasted AADT for I-95 at Davie Interchange

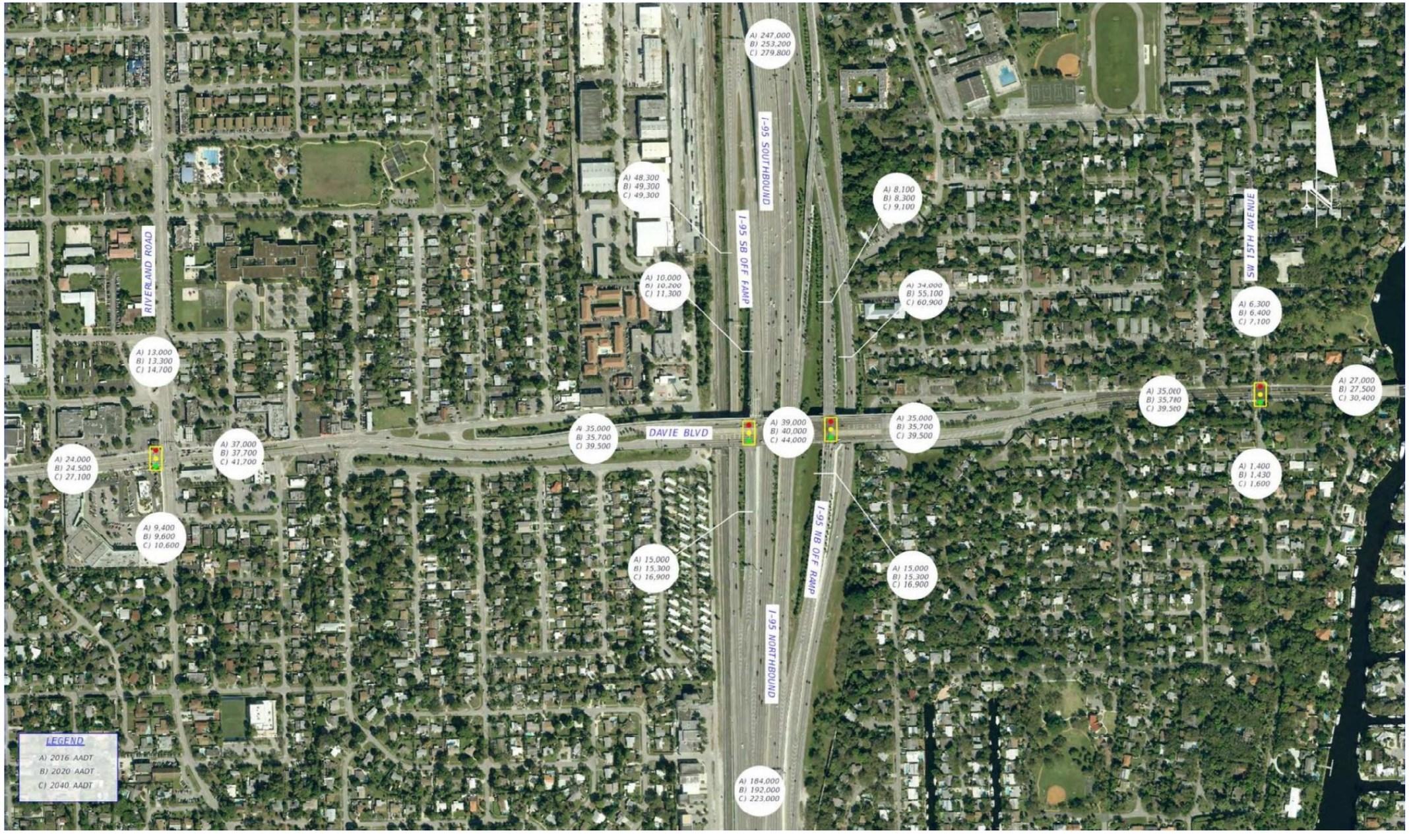


Figure 4-14 | Forecasted AADT for I-95 at Broward Boulevard Interchange

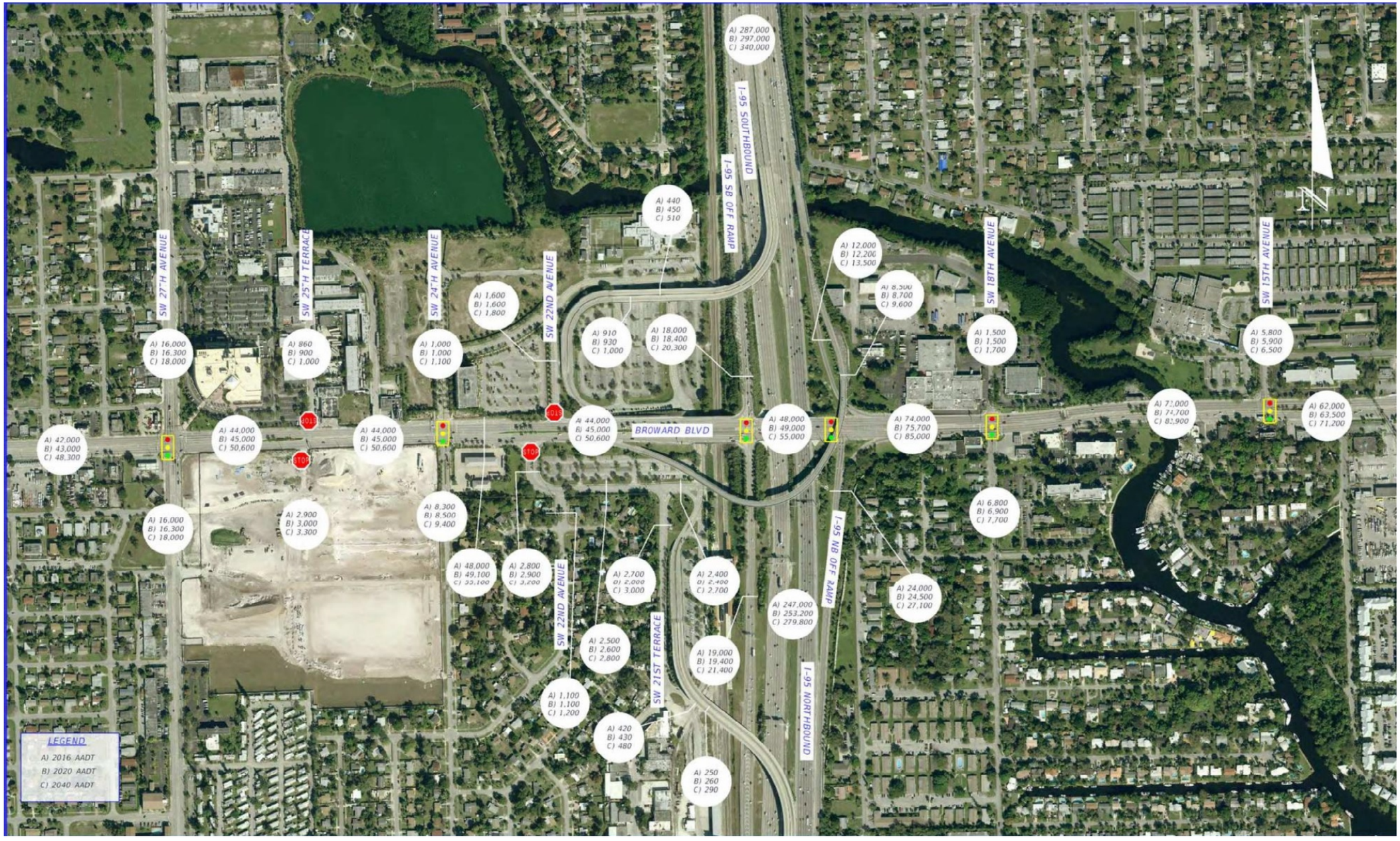


Figure 4-15 | Forecasted AADT for I-95 at Sunrise Boulevard Interchange



Figure 4-16 | 2020 Peak Hour Traffic Volumes for I-95 at Davie Boulevard Interchange

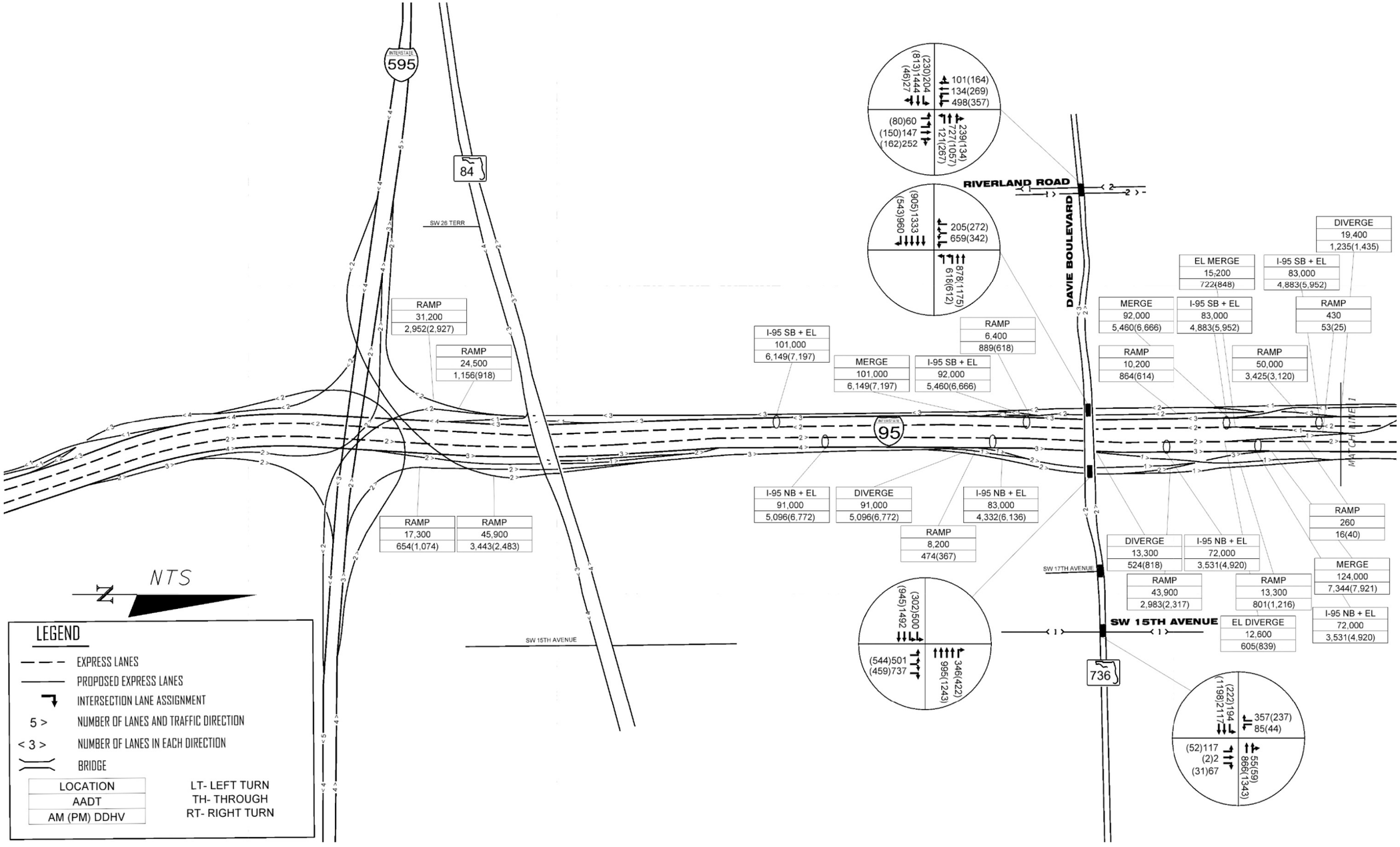


Figure 4-17 | 2020 Peak Hour Traffic Volumes for I-95 at Broward Boulevard Interchange

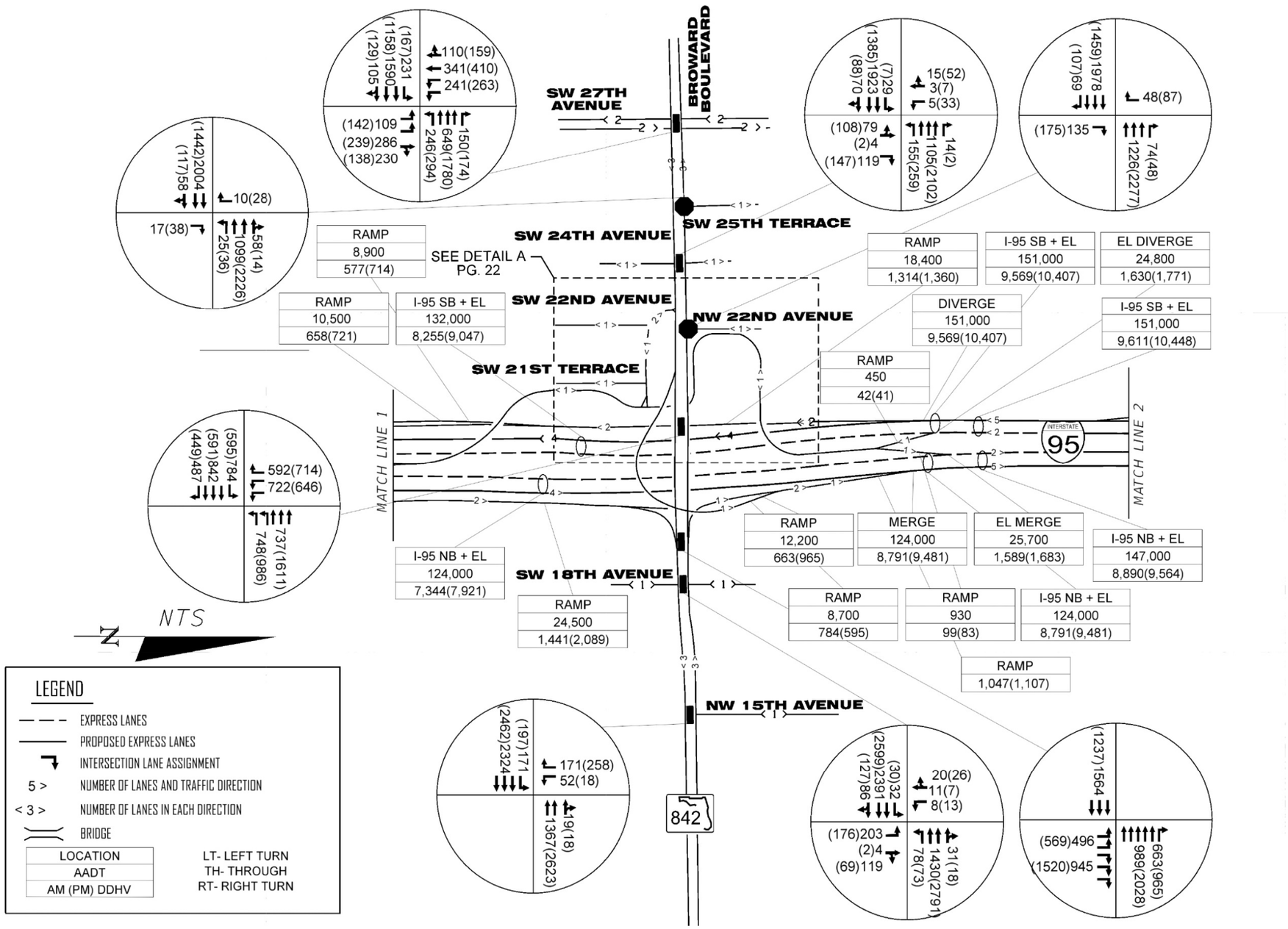


Figure 4-18 | 2020 Peak Hour Traffic Volumes for I-95 at Sunrise Boulevard Interchange

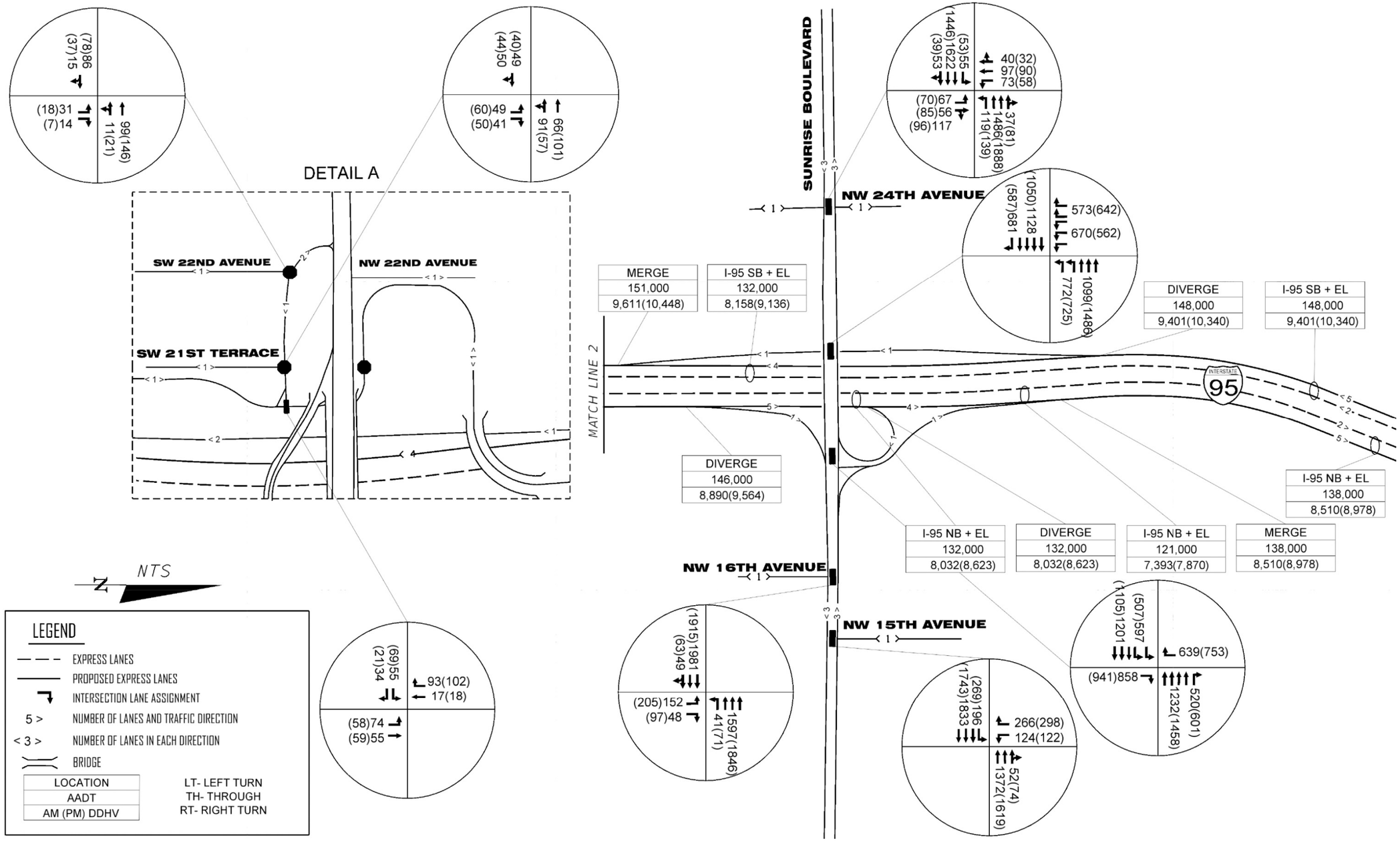


Figure 4-19 | 2040 Peak Hour Traffic Volumes for I-95 at Davie Boulevard Interchange

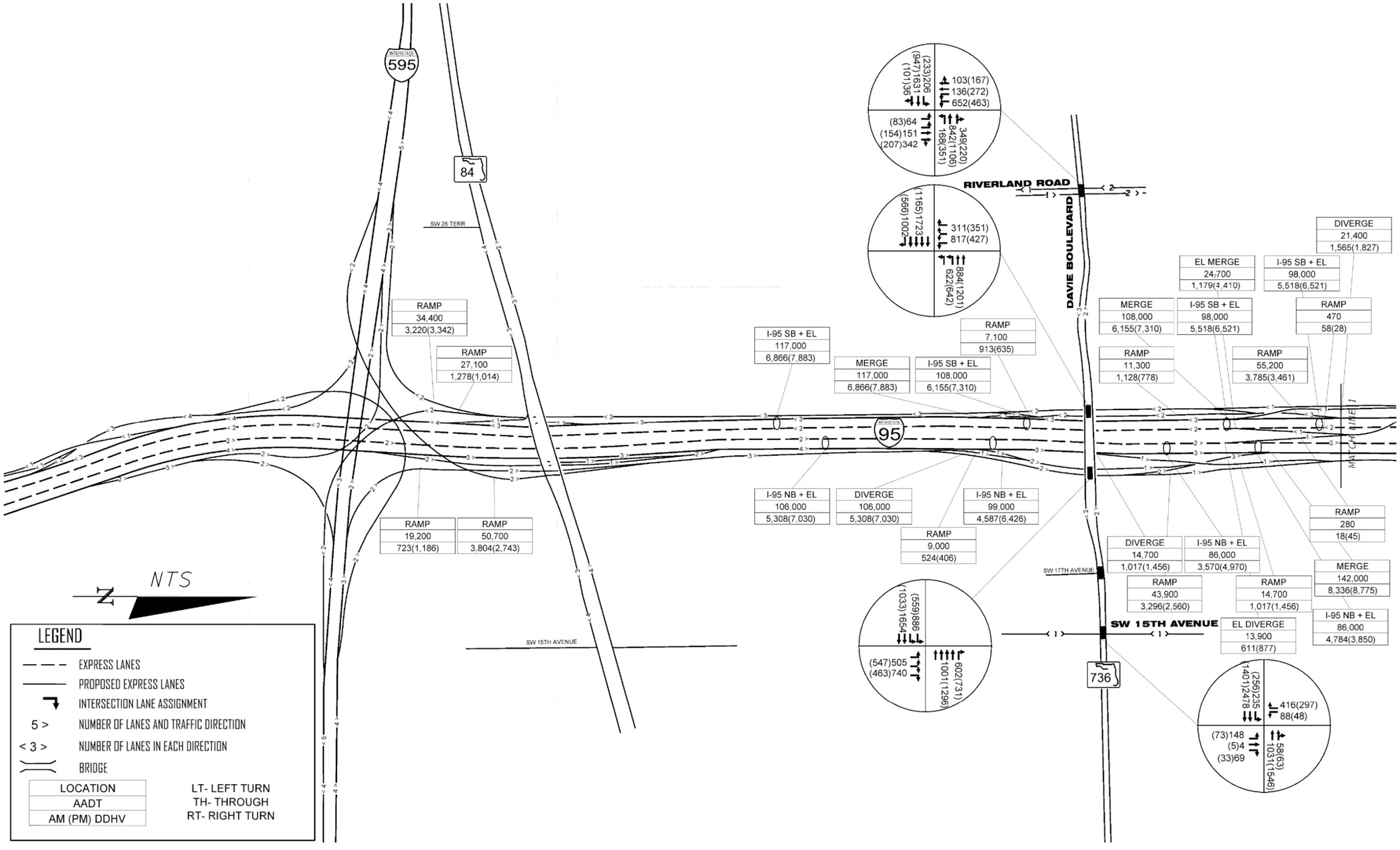


Figure 4-20 | 2040 No-Action Peak Hour Traffic Volumes for I-95 at Broward Boulevard Interchange

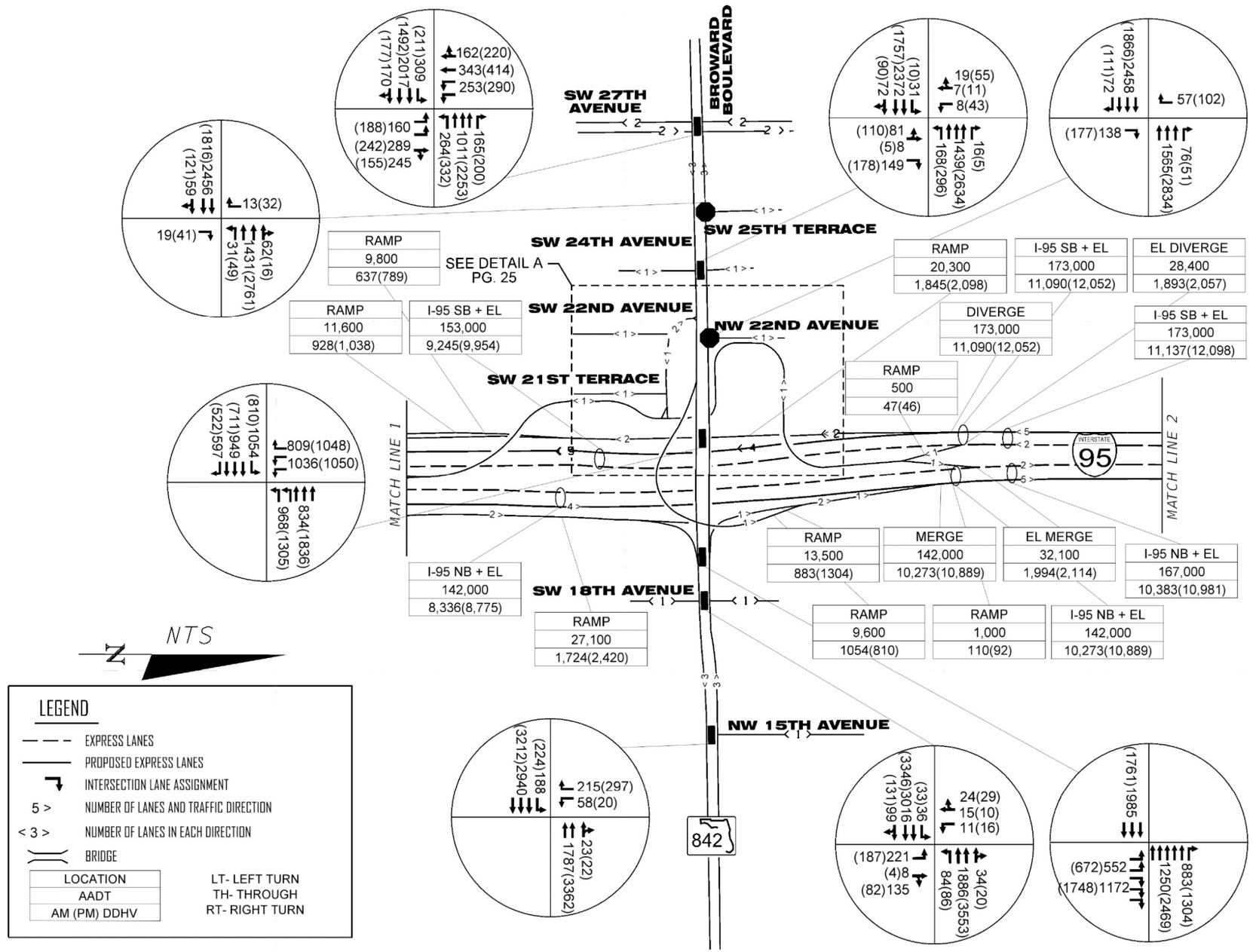


Figure 4-21 | 2040 Peak Hour Traffic Volumes for I-95 at Sunrise Boulevard Interchange

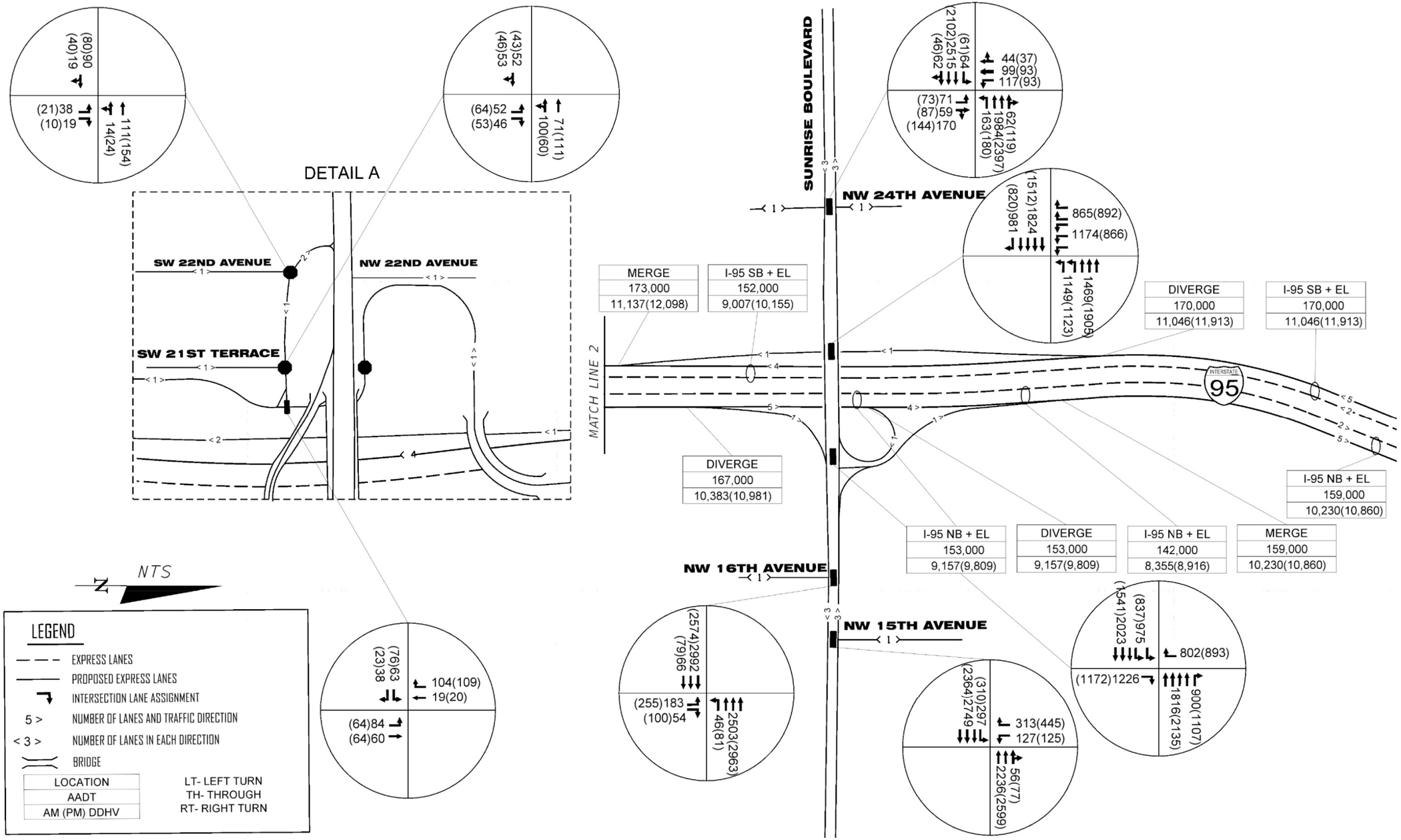


Figure 4-22 | 2020 Peak Hour Traffic Volumes for I-95 at Davie Boulevard Interchange

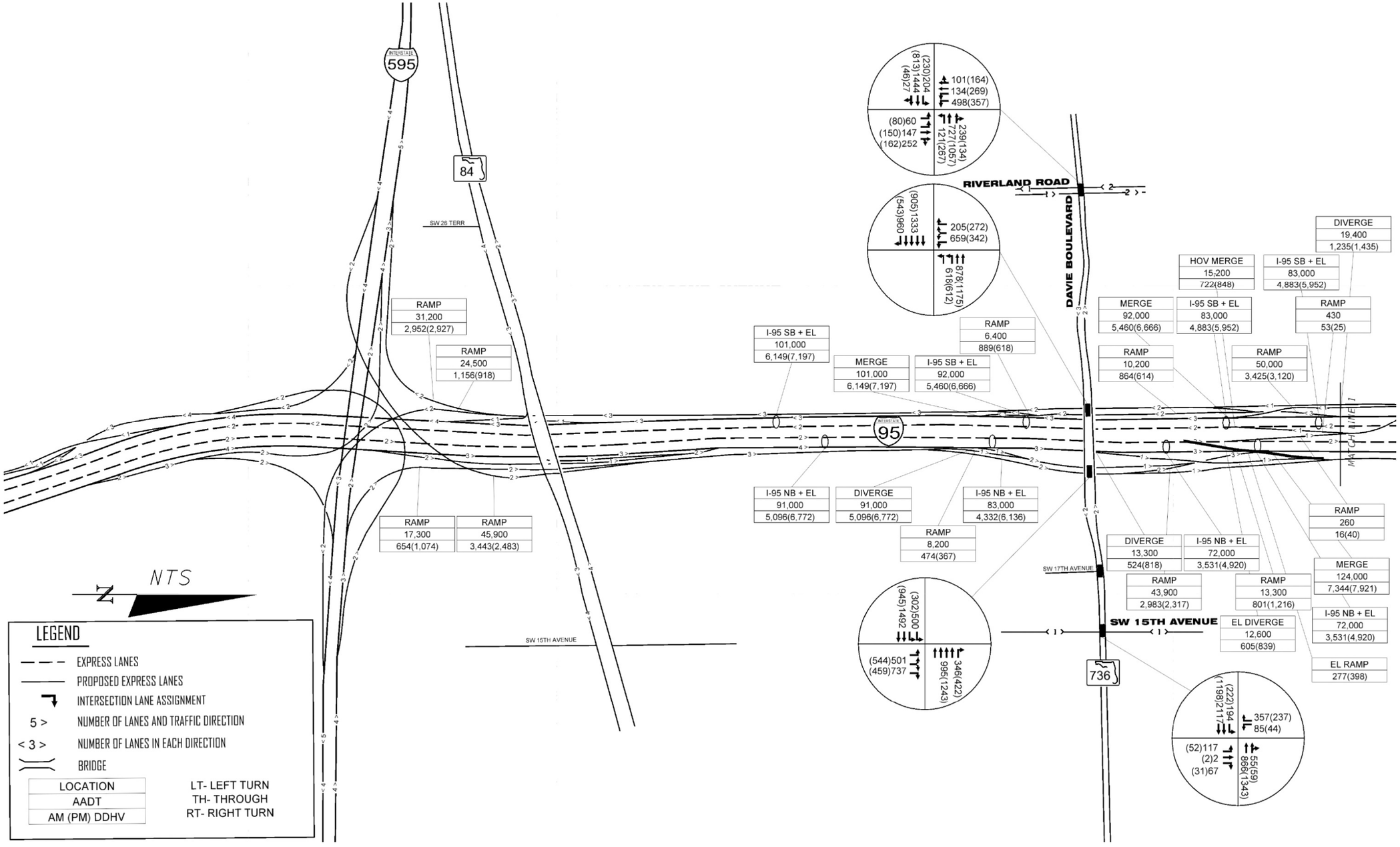


Figure 4-23 | 2020 Peak Hour Traffic Volumes for I-95 at Broward Boulevard Interchange

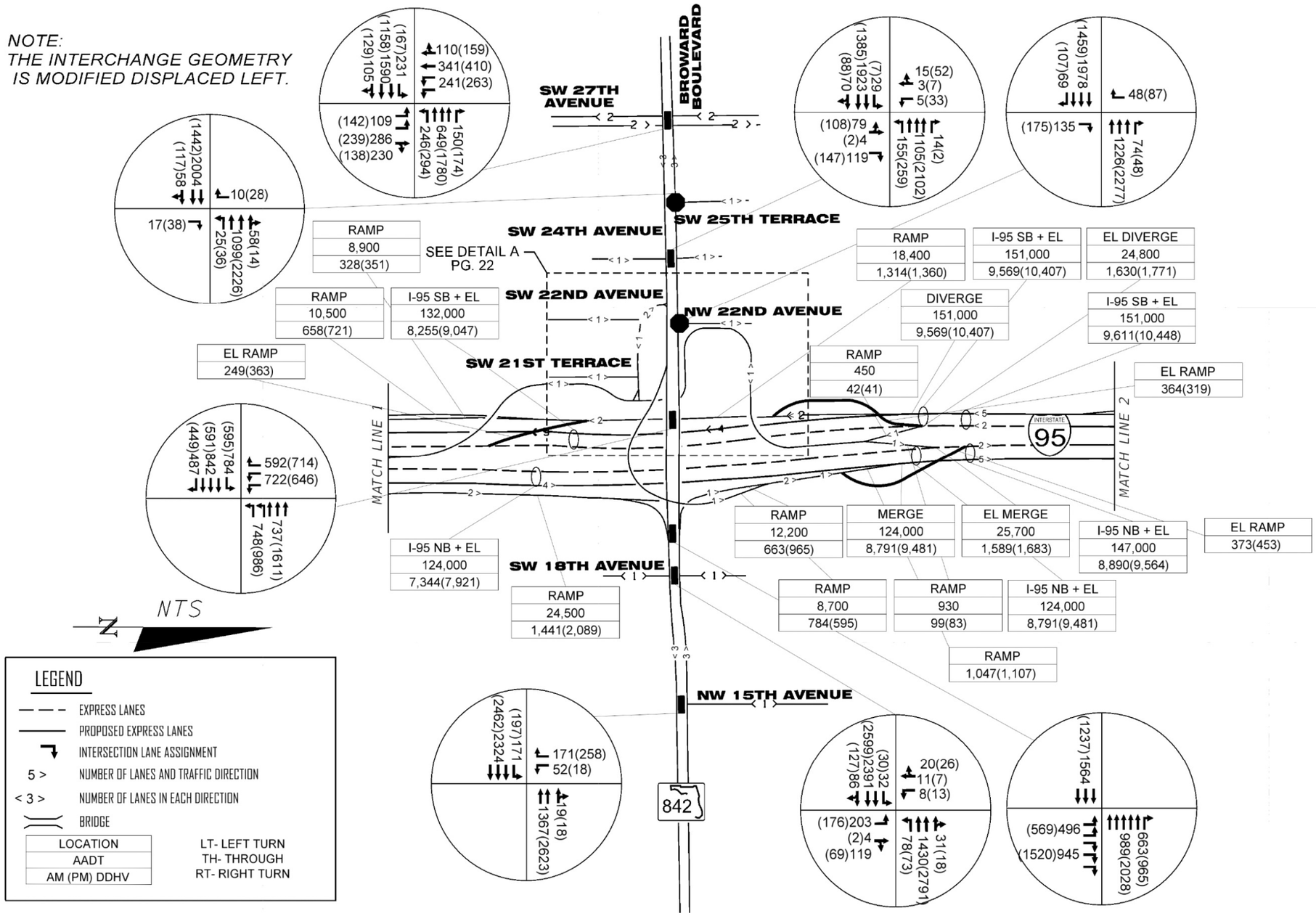


Figure 4-24 | 2020 Peak Hour Traffic Volumes for I-95 at Sunrise Boulevard Interchange

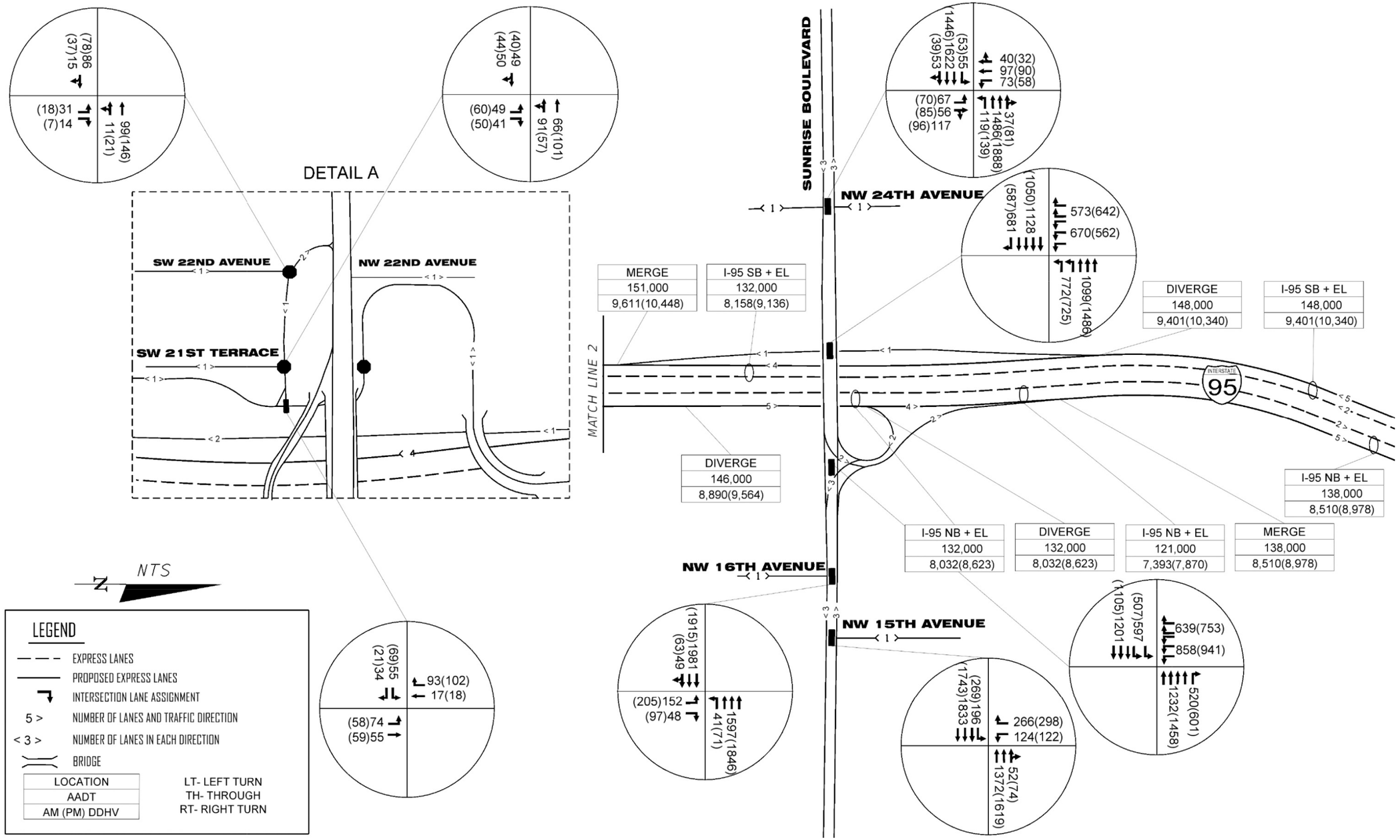


Figure 4-25 | 2040 Peak Hour Traffic Volumes for I-95 at Davie Boulevard Interchange

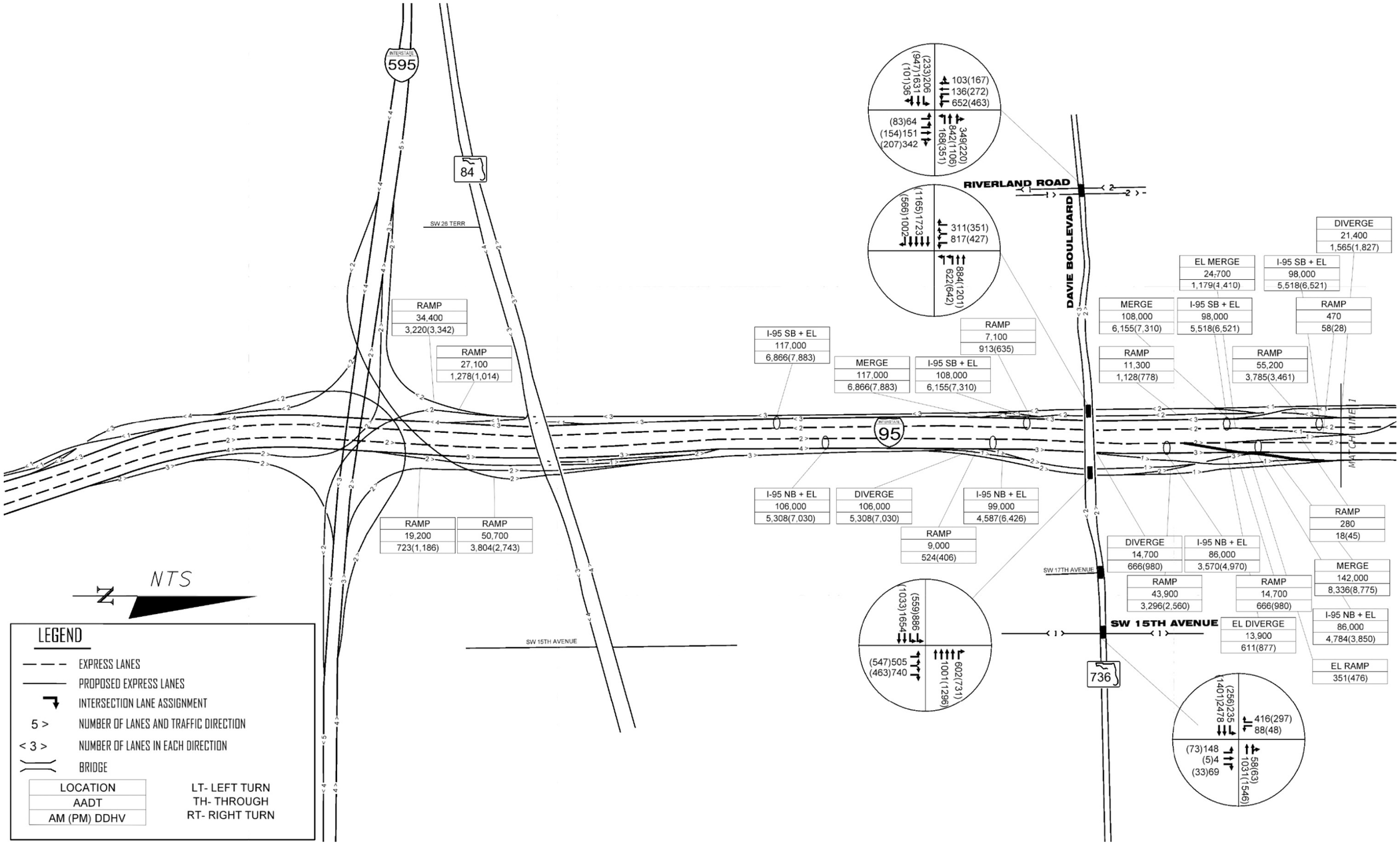


Figure 4-26 | 2040 Peak Hour Traffic Volumes for I-95 at Broward Boulevard Interchange

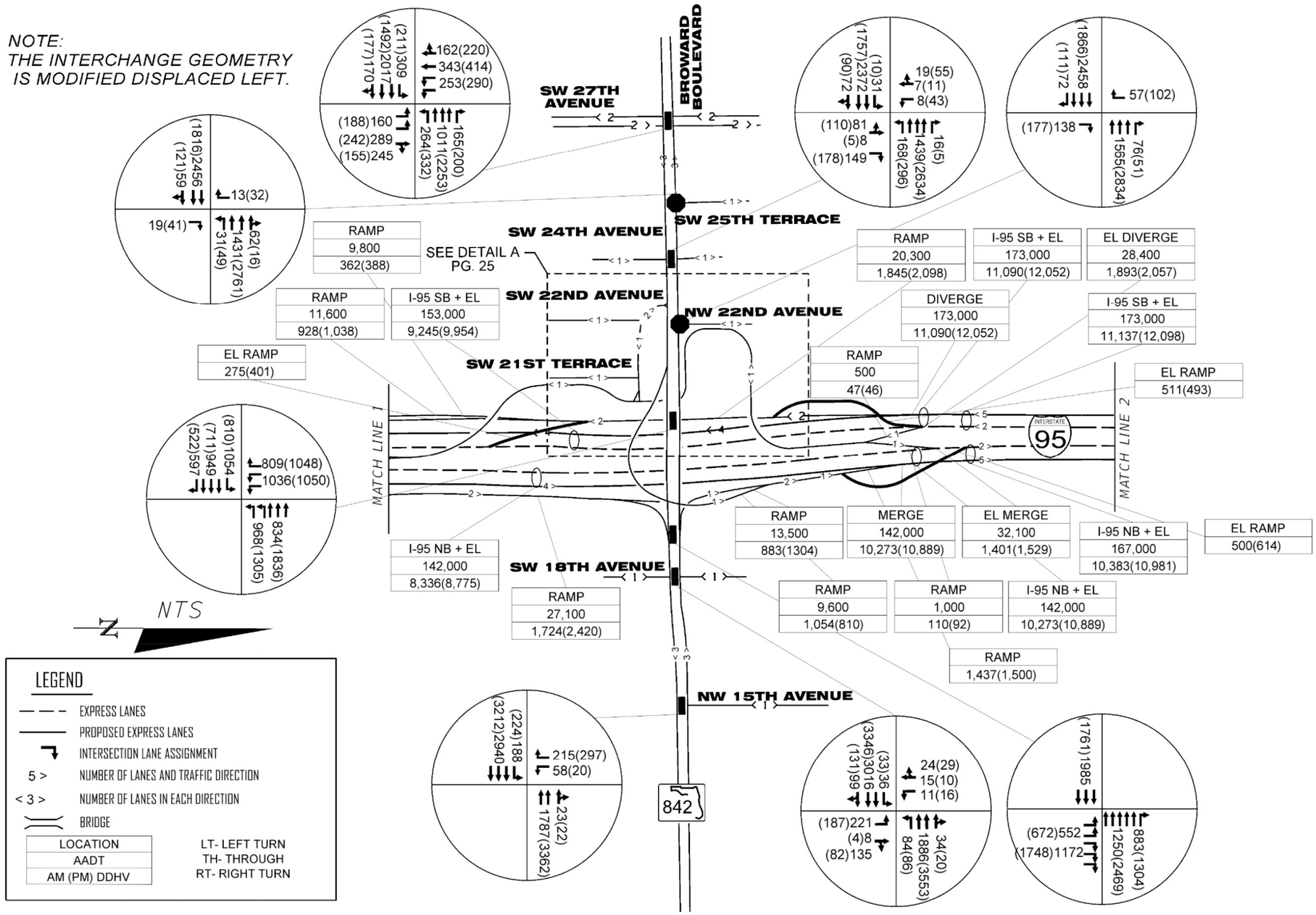
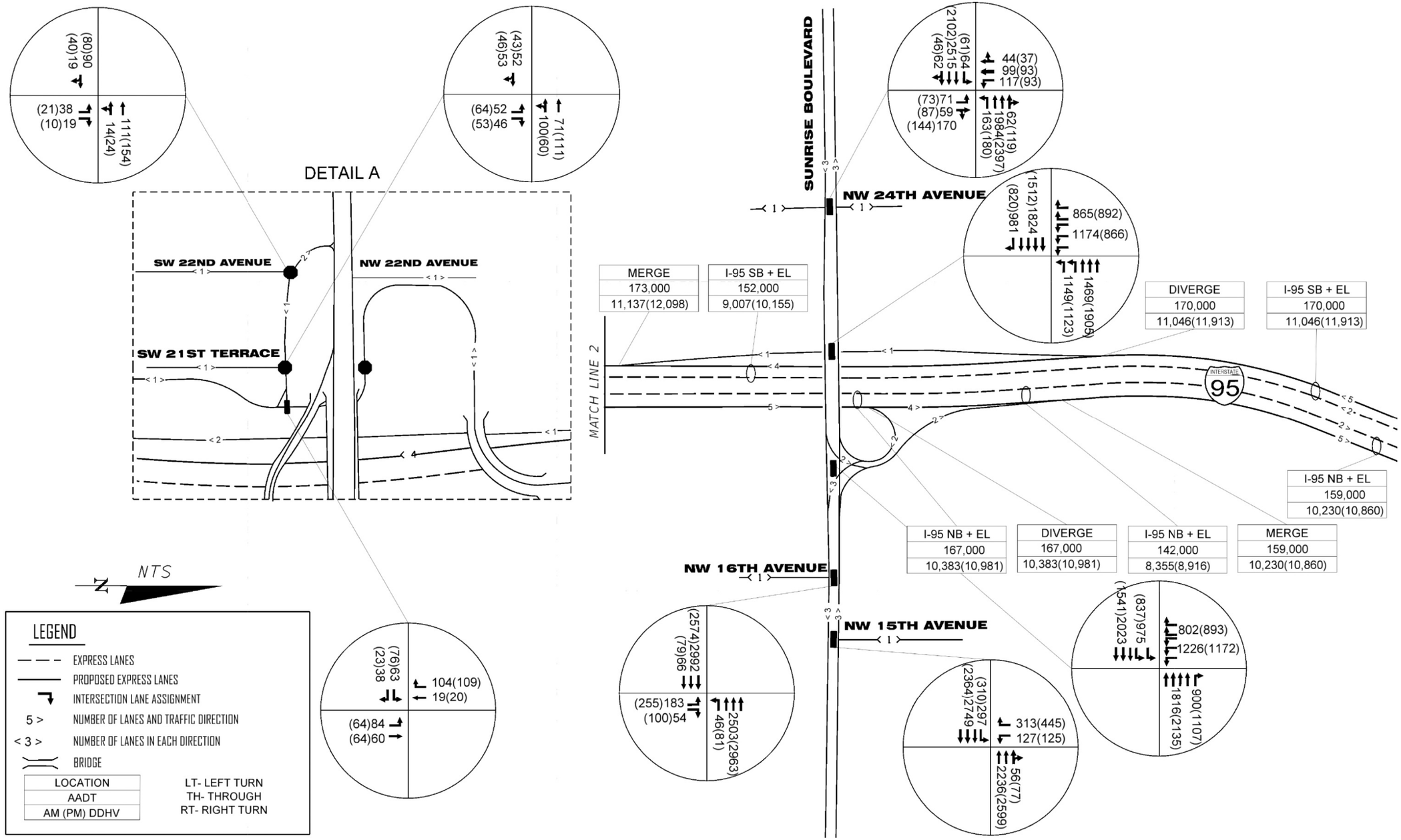


Figure 4-27 | 2040 Peak Hour Traffic Volumes for I-95 at Sunrise Boulevard Interchange



4.5 Evaluation and Elimination of Alternatives

The alternatives matrix is developed to compare the alternatives across the breadth of issues affected by the project. It provides a comparative qualitative and quantitative analysis of alternatives for the project. An evaluation matrix, as shown in **Table 4-2**, was developed to help summarize and compare the impacts associated with each alternative.

Table 4-2 | Alternative Comparison Matrix

I-95/Broward Blvd. Alternatives Comparison Matrix

Evaluation Factors	No Action Alternative	TSM&O	Alt 1 - Tight Diamond	Alt 2A - Displaced Left	Alt 2B - Modified Displaced Left
Meets Purpose and Need	No	No	Yes	Yes	Yes
Project Cost ($ in millions)					
Design Phase (10%)	N/A	$0.5	$13	$13	$13
Right-of-Way Acquisition	N/A	None	TBD	TBD	TBD
Construction	N/A	$5	$130	$130	$130
Construction Engineering and Inspection (CEI) (10%)	N/A	$0.5	$13	$13	$13
Wetland, Habitat and Species Mitigation	N/A	None	None	None	None
Utility Relocation (Only minor adjustments anticipated)	N/A	N/A	Unknown	Unknown	Unknown
Social and Economic Environment					
Number of Parcels (Business and Residential)	0	0	3	3	3
Number of Relocations (Business and Residential)	0	0	3	3	3
Churches, Synagogues, Mosque, Worship Centers	N/A	No Impact	No Impact	No Impact	No Impact
Cemeteries	N/A	No Impact	No Impact	No Impact	No Impact
Schools	N/A	No Impact	No Impact	No Impact	No Impact
Hospitals, Medical Centers	N/A	No Impact	No Impact	No Impact	No Impact
Cultural Environment					
Section 4 (f) Impact	N/A	No Impact	Low	Low	Low
Historic Sites and Districts	N/A	No Impact	No Impact	No Impact	No Impact
Archaeological Sites	N/A	No Impact	No Impact	No Impact	No Impact
Recreation Areas	N/A	No Impact	No Impact	No Impact	No Impact
Natural Environment					
Wetlands	N/A	No Impact	Low	Low	Low
Protected Species and Habitat	N/A	No Impact	No Impact	No Impact	No Impact
Floodplains	N/A	No Impact	No Impact	No Impact	No Impact
Physical Environment					
Contamination/Hazardous Waste Sites	N/A	No Impact	Low	Low	Low
Traffic Noise	N/A	No Impact	Low	Low	Low
Water Quality and Water Quantity	N/A	No Impact	No Impact	No Impact	No Impact
Air Quality	N/A	No Impact	No Impact	No Impact	No Impact
Utilities	N/A	No Impact	Low	Low	Low
Bicycles and Pedestrians	N/A	Low	Medium	Medium	Medium
Constructability	N/A	High	Medium	Medium	Medium
Traffic Operations					
Driver Expectancy	No Impact	No Impact	No Impact	Low	Low
AM Level of Service (LOS) (SB Ramps/NB Ramps)	F/F	F/F	E/D	C/E	D/B
PM Level of Service (LOS) (SB Ramps/NB Ramps)	F/F	F/F	F/E	C/F	D/B
Transit					
Lower Level Circulation	N/A	N/A	Medium	Medium	Medium
Broward Median Station	No	No	Yes	Yes	Yes
Accomadation of Broward Blvd. Fixed Transit	No	No	Low	Medium	Low

5.0 Public Involvement/Project Coordination

A Public Involvement Plan (PIP) was developed at the beginning of the study with the purpose of outlining the public involvement approach to be taken. The PIP was updated and amended throughout the project development process to incorporate the latest public involvement policies, techniques and comments as they evolved through the life of the project, and to guide the design of special events and study groups that were identified during the course of the study. Public outreach activities were designed to ensure that the public was informed, provided opportunities to comment and ask questions, and so the FDOT could use these comments to guide the study. These outreach activities commenced at the onset of the PD&E Study and continued during the development and evaluation of alternatives and the selection of the Preferred Alternative. Public involvement activities included close coordination and periodic meetings with the City of Fort Lauderdale, Broward County, the Broward Metropolitan Planning Organization (MPO), transit agencies that serve the study area, pertinent agencies at the state, county and municipal levels, adjacent property owners, and adjacent neighborhood associations.

5.1 MPO Coordination

The initial coordination meeting was held with the MPO staff on September 5, 2017, to present the alternatives under consideration to the MPO prior to the Alternatives Public Workshop. Presentations were made to the Citizens Advisory Committee and Technical Advisory Committee on January 23, 2019 and to the Board on February 14, 2019 for the purpose of reviewing the alternatives evaluated and the Preferred Alternative prior to the public hearing.

5.2 Coordination with Elected/Appointed Officials

A kick off meeting for agency and elected officials was held on November 3, 2016 at the City of Fort Lauderdale City Hall. The purpose of the meeting was to inform attendees about the purpose and need for the project, the study area limits, and receive comments about the project. The meeting was attended by three representatives from the City of Fort Lauderdale. They expressed enthusiasm about potential solutions and asked if a parking deck was still a possible option. This led to a discussion about a Broward Boulevard median station at 2nd level for premium transit that could include an elevator to the park-and-ride level (1st level). There was also discussion about replacing the existing Broward Boulevard bridge structures over I-95 and the SFRC to support future light rail. It was noted that the alternatives considered would be include replacement of both existing bridges to accommodate future rail, if warranted. Noted concerns include The Salvation Army's concern about the intersection at Broward Boulevard and NW 18th Avenue, Riverland residents' sensitivity to noise, and the development coming to the west of I-95 between 21st Avenue and 31st Avenue. The City commented that their bicycle and pedestrian standards should be applied to make this area better.

5.3 Public Meetings

The Notice to Proceed with the PD&E Study was issued on May 17, 2016 and the first public meeting was held on November 9, 2016. Three public meetings and two technical charrettes were held prior to the public hearing. The public meetings included a Public Kick-Off Meeting and two Alternatives Public Workshops; a second Alternatives Public Workshop was held due to the occurrence of Hurricane Irma the week prior to the initial Alternatives Public Workshop. The two technical charrettes were held with transportation partners regarding the proposed improvements to the Park-and-Ride lot at the interchange. All of the formal public meetings were advertised in the Sun-Sentinel and notification letters were sent to property owners within 300 feet of the right-of-way, which included over 1,120 addresses. Public notices were also distributed at the Tri-Rail station and placed on cars parked in the Park-and-Ride lot. More details about each of these meetings is provided in this section and public comments received during the meetings are contained in Appendix D of the Socialcultural Effects Evaluation Report.

5.3.1 Public Kick-Off Meeting

The Public Kick-Off Meeting was held on November 9, 2016, at 5:30 p.m. at the Reverend Samuel Delevoe Memorial Park located at 2520 NW 6 Street, Fort Lauderdale, FL 33311. This park is located immediately adjacent to the study area. The meeting began as an open house at 5:30 where attendees could review information provided on boards and speak with project team representatives. A formal presentation was given at 6:00 p.m. and a question/comment period followed. The purpose of the meeting was to provide the community an opportunity to learn about the improvements being studied and the PD&E process in general, and to provide an opportunity to raise initial concerns and issues that should be considered as part of the study. More than 25 people attended the meeting and several questions were asked regarding noise abatement, project schedule and cost, and improvements to the Park-and-Ride lot. No written comments were received.

5.3.2 Technical Charrettes

The first technical charrette was held on February 14, 2017, from 10 a.m. until 3 p.m. at the FDOT Traffic Management Center located at 2300 W. Commercial Boulevard, Fort Lauderdale, FL 33309. The purpose of this meeting was to review the issues and potential solutions for the Park-and-Ride lot and a potential median transit station on Broward Boulevard. Participants at this meeting were from Broward County, the Broward MPO, the City of Fort Lauderdale, FDOT, Miami-Dade County, the South Florida Regional Transportation Authority, South Florida Commuter Services, and Sun Trolley. A detailed summary of the meeting and a list of attendees is included in Appendix D of the Socialcultural Effects Evaluation Report. Key issues raised during this first charrette included pedestrian safety, lower level circulation challenges, and need for improved connection between lower level and Broward Boulevard

The second technical charrette was held on October 2, 2017 from 10:30 a.m. until noon at the HDR Office located at 3250 W. Commercial Boulevard, Suite 100, Fort Lauderdale, FL 33309. The purpose of this meeting was to share the Park-and-Ride alternatives developed and receive comments. Participants at this meeting were from the same agencies as the prior meeting. A detailed summary of the meeting and

the list of attendees is included in Appendix D of the Socialcultural Effects Evaluation Report. The main issues discussed during this meeting were additional improvements for bicycles and pedestrians within the lot, identification of a bus layover area on the plan, and the circulation needs of the buses.

5.3.3 Alternatives Public Workshops

Two Alternatives Public Workshops were held for this project. The first workshop was held on September 14, 2017, at 5:30 p.m. at the Reverend Samuel Delevoe Memorial Park located at 2520 NW 6 Street, Fort Lauderdale, FL 33311. Hurricane Irma impacted South Florida a few days before the scheduled workshop and many areas were still without power. However it was decided to move forward with the workshop since the meeting facility did have power and there was not sufficient time to notify the public of its cancellation. The meeting started as an open house and a formal presentation was given at 6:00 p.m. The primary purpose of the meeting was to provide the public an opportunity to review the alternatives under consideration and to provide comments about the project. Display materials included general information about the PD&E process, project-specific information such as the schedule and Purpose and Need, the mainline and interchange alternatives, noise analysis information, sociocultural resources, and information about the proposed use of the pond in Reverend Samuel Delevoe Memorial Park for drainage. (This proposed use of the pond has since been determined to not be necessary and is no longer a consideration for the project.) Comments received during this workshop were focused on stormwater and the use of the pond in the park. Several representatives from Broward County stated objections to the use of the pond for project drainage. A summary of the meeting and the materials displayed is included in Appendix D of the Socialcultural Effects Evaluation Report.

The second Alternatives Public Workshop was held on November 14, 2017, at the same time and in the same location as the first workshop. This workshop followed the same format, starting with an open house followed by a formal presentation, and presented the same materials and information from the workshop in September. Comments received during this workshop were focused on potential right-of-way impacts, damage to landscaping that screens I-95 from the adjacent neighborhoods, and other construction projects in the area. A summary of the questions and comments raised during this workshop is provided in Appendix D of the Socialcultural Effects Evaluation Report.

5.4 Small Group and Stakeholders Meetings

The project team has held several meetings with staff from the City of Fort Lauderdale regarding this project. There have also been meetings with an adjacent property owner that were tied to the 95 Express project. The project team is planning meetings with adjacent Homeowner Association and/or neighborhood groups prior to the Public Hearing to review the potential visual impacts of the proposed braided ramps on the neighborhoods north of Broward Boulevard. **Table 5-1** below provides a summary of the meetings that have been held regarding this project.

Table 5-1 | Small Group and Stakeholder Meetings Summary

Meeting Audience	Meeting Date	Number of Attendees	Issues Discussed
Woodlawn Cemetery Community Group	10/27/16	N/A	Introduced the project and listened to community's concerns about existing exit ramps on to Sunrise Boulevard.
City of Fort Lauderdale	2/17/17	7	Recent or proposed development in the study area and desire to have this project include gateway features (landscaping and signs)
Riverland Developer	3/20/17	3	Use of NW 22nd Avenue and Park-and-Ride lot by proposed development
City of Fort Lauderdale	8/28/17	7	Bicycle and pedestrian improvements included in the project, ability to support future transit modes, and gateway features
Woodlawn Cemetery Community Group	8/31/17	N/A	Sunrise Boulevard Feasibility Results
City of Fort Lauderdale	1/19/18	6	Bicycle and pedestrian improvements, gateway features, and proposed dog park
Dorsey Riverbend Homeowner's Association (HOA)	11/26/18	20	Purpose was to discuss proposed improvements and potential effects on community
Riverland Civic Association	12/03/18	1	Purpose was to discuss proposed improvements and potential effects on community
Riverside Park Residents Association	12/05/18	20	Purpose was to discuss proposed improvements and potential effects on community
Durrs Community Association	02/07/19	0	Purpose was to discuss proposed improvements and potential effects on community
River Gardens/Sweeting Estates HOA	01/28/19	15	Purpose was to discuss proposed improvements and potential effects on community

5.5 Public Hearing

The I-95 at Broward Boulevard Interchange PD&E Study Public Hearing was held on Monday, March 18, 2019 at the African American Research Library and Cultural Center located at 2650 Sistrunk Boulevard, Fort Lauderdale, FL 33311. The Hearing began as an open house at 5:30 p.m., with a formal presentation at 6:00 p.m. followed by a comments period.

The purpose of this Public Hearing was to provide elected and appointed officials, property owners and other interested parties an opportunity to review the proposed improvements and make written or oral comments about the study and the alternatives being proposed.

The display boards included an aerial roll plot of the study area, existing sound barriers, the alternative improvements to the Park-and-Ride Lot, proposed new traffic movements between 95 Express and the

existing Interchange entrance and exit ramps, location of potential offsite pond sites, renderings of proposed bridges near NW 6th Street and I-95, and the project schedule. Prior to the presentation, attendees discussed the project one on one with the FDOT Project Manager, Department staff, and Project Consultant staff. Attendees were provided a handout on the PD&E Study, which included information on the Preferred Alternative.

The Public Hearing was attended by approximately 55 residents, interested parties, local agency partners, FDOT, and consultants. One representative from the City of Fort Lauderdale and one from BCT were in attendance. After the presentation, the floor was opened to comments. There were two members of the public that shared their comments at the microphone. Their comments were made part of the official record and noted in the transcripts of the hearing. See the Social Cultural Evaluation Report for the comments provided by the public along with the comment responses, presentation, boards, and project handouts.

Notification of the Hearing was published twice in the *Sun Sentinel* as a 1/4 page legal advertisement, on the FDOT public notices website, in the Florida Administrative Register, and on the Project's website. An approximate 975-piece mailing and over 100 emails to elected officials, agencies, Native American representatives, and other interested parties were sent. Notices were also placed on the windshields of parked cars station at the Park-and-Ride lots a week before the hearing.

6.0 Preferred Alternative

The Preferred Alternative is the Modified Displaced Left Turn Alternative, Build Alternative 2B. Alternative 2B accommodates all exit ramp queues and achieves LOS D or better at both ramp terminal intersections. Alternative 2B operationally outperforms the other considered alternatives and efficiently moves the future traffic demand through the interchange. Based on the intersection operational analyses, Alternative 2B, the Modified Displaced Left, provides better operations when compared to the other alternatives. Alternative 2B was selected as the Broward Boulevard Interchange Preferred Alternative, data collection and analysis are included in the SIMR. A detailed description of the development of the Preferred Alternative is included in subsequent sections of this report.

6.1 Right-of-Way Needs and Relocation

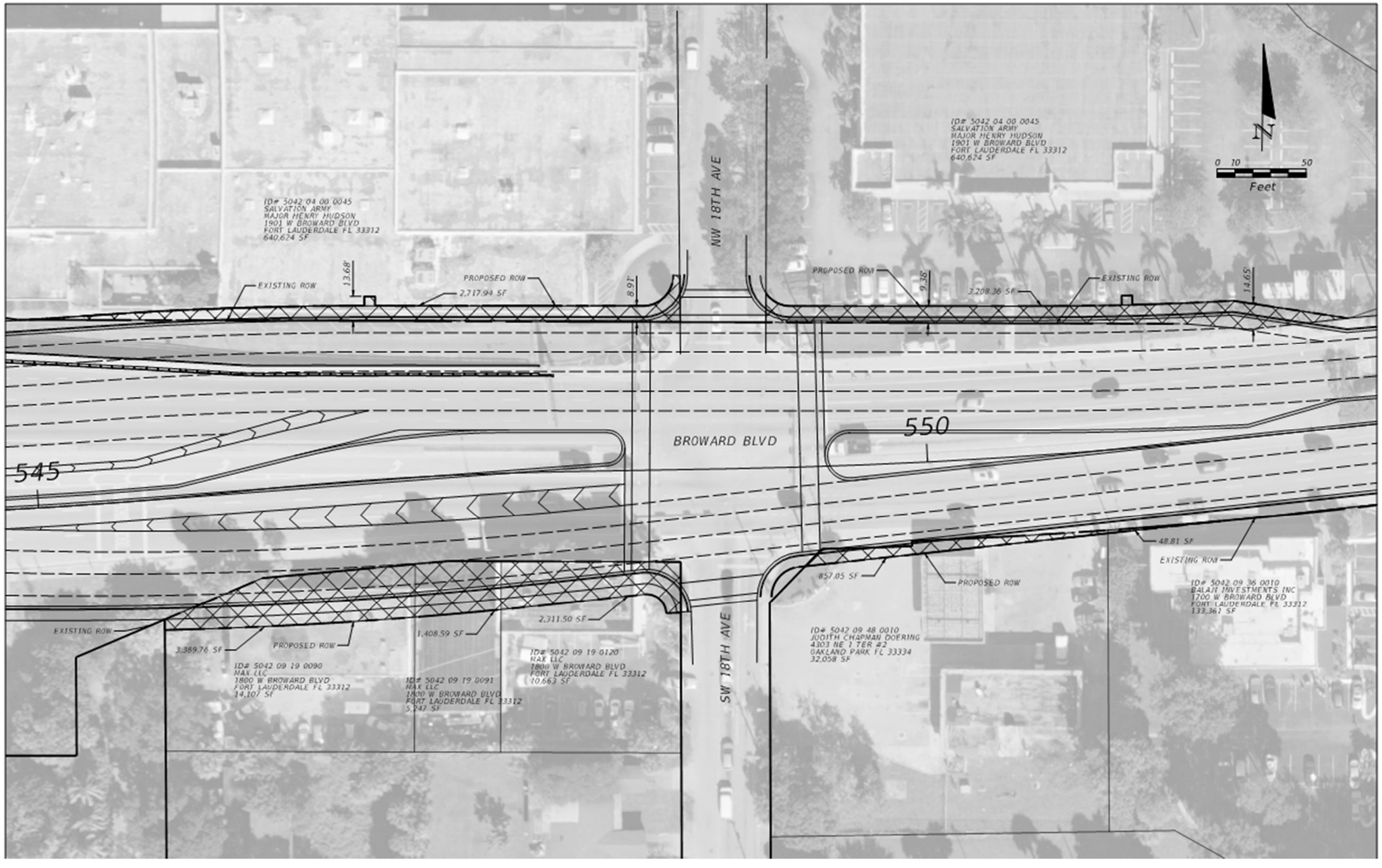
The proposed improvements of the Preferred Alternative will require acquiring additional R/W in two locations as described in **Table 6-1** and shown in **Figure 6-1**.

Table 6-1 | Estimated Right-of-Way Impacts for Preferred Alternative

Estimated Right-of-Way Impacts for Alternative 2B (Broward Blvd. NW/SW 18th Ave)				
FID	PARCELID	PARCEL USE DESCRIPTION (from Broward County Property Appraiser site)	OWNER NAME	PERMANENT R/W IMPACT AREA (SF)
1	504204000045	CHURCHES	SALVATION ARMY - MAJOR HENRY HUDSON	5,926.30
2	504209190090	OFFICE BUILDINGS, NON-PROFESSIONAL SERVICES BUILDINGS, ONE-STORY	MAX LLC	14,107.00
3	504209190091	OFFICE BUILDINGS, NON-PROFESSIONAL SERVICES BUILDINGS, ONE-STORY	MAX LLC	5,247.00
4	504209190120	OFFICE BUILDINGS, NON-PROFESSIONAL SERVICES BUILDINGS, MULTI-STORY	MAX LLC	10,663.00
5	504209480010	SERVICES STATIONS	DOERING, JUDITH CHAPMAN	857.05
6	504209360010	HOTELS, MOTELS	BALAJI INVESTMENTS INC	48.81

Parcels Impacted	6
Total Right of Way (SF)	36,849.16

Figure 6-1 | Right of Way Impacts



Additionally, the proposed improvements of the Preferred Alternative will require the removal of an encroaching fence onto FDOT right-of-way. The FDOT Parcel (Folio 504204320100) will be used as stormwater conveyance and treatment area and it is located directly east of I-95 between NW 7th Place and NW 8th Street.

6.2 Typical Sections

The proposed Broward Boulevard typical section, **Figure 6-2**, is a six-lane divided roadway with three varied width (11'-13') lanes, with 7' wide bicycle lanes in each direction, curb & gutter, and 6' wide sidewalks.

The proposed typical section for the bridge over SW 21st Terrace and the railroad corridor has three varied width (11'-13') through lanes in each direction, two 12' eastbound right turn lanes, with 7' wide bicycle lanes in each direction, a 49' wide median, raised 6.5' sidewalk on the south side and 8' barrier protected sidewalk along the north side, as illustrated in **Figure 6-3**.

Figure 6-2 | Typical Section: Broward Boulevard

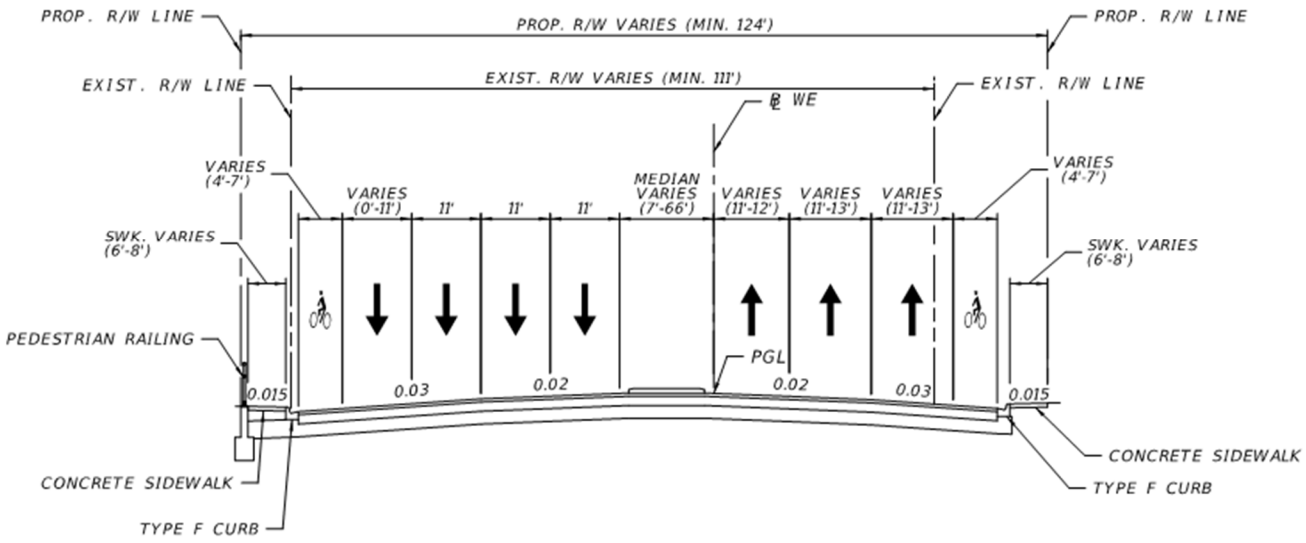
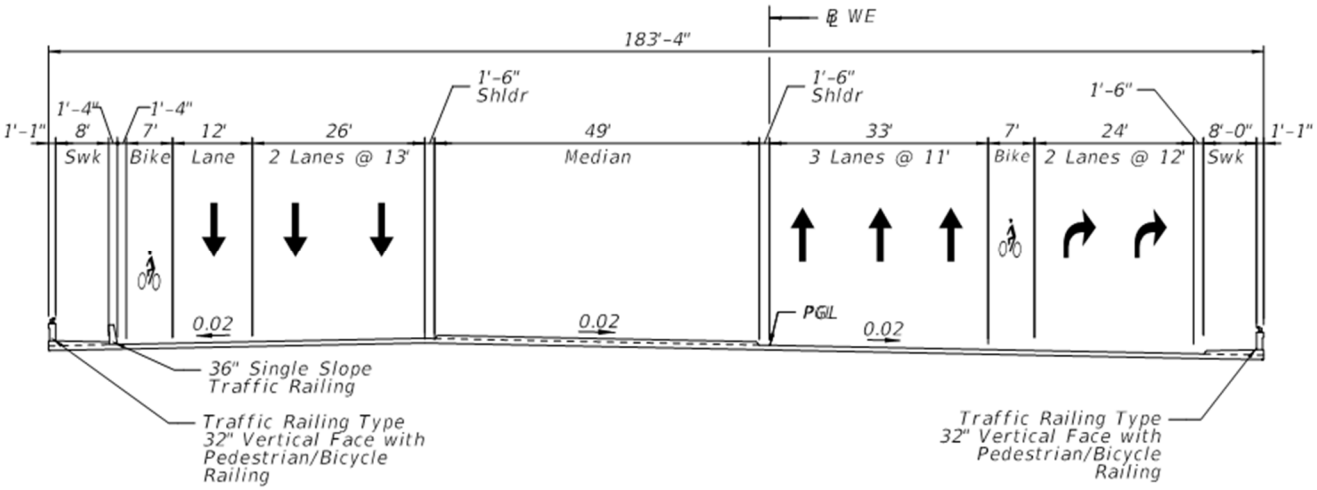
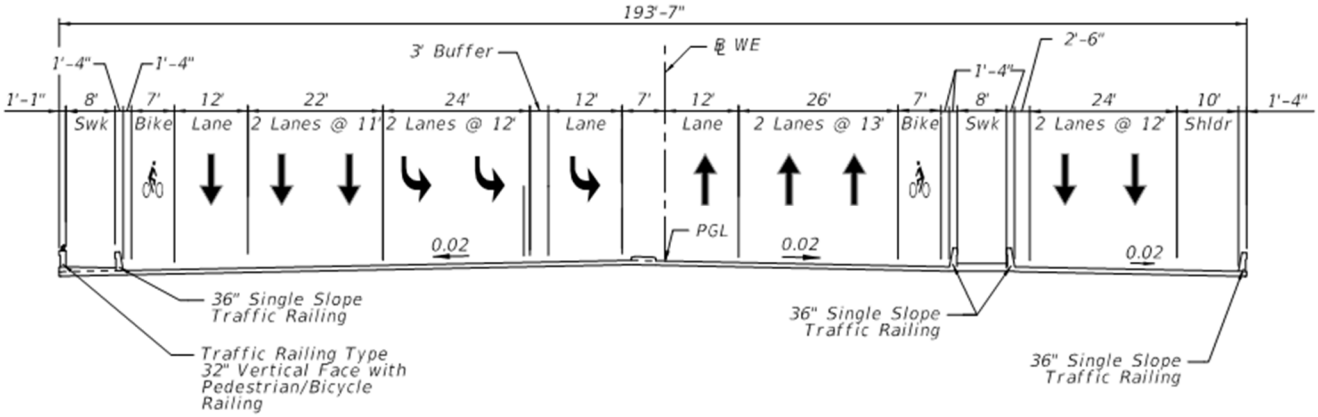


Figure 6-3 | Typical Section: Broward Boulevard over SFRC



The proposed typical section for the bridge over I-95 has three varied width (11'-13') through lanes in each direction, three 12' left turn lanes on the westbound direction, 8' barrier protected sidewalk on the north and south side, and a 7.5' median, (**Figure 6-4**).The Typical Section Package can be found in **Appendix B**.

Figure 6-4 | Typical Section: Broward Boulevard over I-95



6.3 Pedestrian Safety

FDOT District 4 has developed a guideline for incorporating motorist and pedestrian signing and marking notifications, specifically related to Pedestrian and Bicycle treatments at interchange ramps. These guidelines were developed in 2018 and will be applied to the preferred alternative for this interchange, during the final design phase.

6.4 Horizontal and Vertical Geometry

Once the Modified Displaced Left was determined to be the Preferred Alternative, the PD&E project team worked to further refine the horizontal and vertical geometry of the Modified Displaced Left Alternative.

6.4.1 Broward Boulevard

The horizontal geometry of the Preferred Alternative along Broward Boulevard allows for the addition of necessary turn lanes, wider sidewalks, and full width bicycle lanes to improve the overall operation and safety of the interchange. The vertical geometry of the Preferred Alternative along Broward Boulevard raises the profile to provide space for a transit connection station underneath Bridge 860257. Details of the horizontal geometry are summarized in **Tables 6-2** and **6-3**, and the vertical geometry is summarized in **Table 6–4**.

Table 6-2 | Horizontal Geometry: EB Broward Boulevard

Curve No.	Proposed Geometry				Design Criteria	
	Design Speed (MPH)	Radius (Feet)	Super-elevation (e)	Length (Feet)	FDM (Length)	FDM (e)
CURVE 2	45 MPH	2100.00	NC	210.340	400.0	NC
CURVE 3	45 MPH	2100.00	NC	516.700	400.0	NC
CURVE 4	45 MPH	2089.00	NC	127.810	400.0	NC
CURVE 5	45 MPH	2500.00	NC	424.09	400.0	NC

Table 6-3 | Horizontal Geometry: WB Broward Boulevard

Curve No.	Proposed Geometry				Design Criteria	
	Design Speed (MPH)	Radius (Feet)	Super-elevation (e)	Length (Feet)	FDM (Length)	FDM (e)
CURVE 1	45 MPH	2093.00	NC	175.24	400.0	NC
CURVE 2	45 MPH	2089.00	NC	189.80	400.0	NC
CURVE 3	45 MPH	2467.00	NC	188.03	400.0	NC
CURVE 4	45 MPH	2090.00	NC	154.24	400.0	NC
CURVE 5	45 MPH	2156.00	NC	208.44	400.0	NC

Table 6-4 | Vertical Geometry: Broward Boulevard

Criteria	Proposed Design Value
Design Speed	45 MPH
Minimum Grade	0.706%
Maximum Grade	5.977%
Vertical Curve Lengths K_{crest} (required) = 98 K_{sag} (required) = 79	VC1(sag) - 528' ($K_{provided}$ = 79) VC2(crest) - 1116.5' ($K_{provided}$ = 98) VC3(sag) - 343.3' (Kprovided = 79)
Clearance over Existing Roadways	16.5'
Clearance over RR	24.25'

6.4.2 I-95 Mainline

The proposed horizontal geometry provides a shifted alignment of the northbound and southbound sides due to the need to provide space for the proposed express lanes direct connection ingress and egress braids. Details of the horizontal geometry are summarized in **Tables 6-5** and **6-6**. The proposed vertical geometry is to match the existing.

Table 6-5 | Horizontal Geometry: NB I-95

Curve No.	Proposed Geometry				Design Criteria	
	Design Speed (MPH)	Radius (Feet)	Super-elevation (e)	Length (Feet)	FDM (Length)	FDM (e)
CURVE 1	65 MPH	13100.00	NC	557.400	400.0	NC
CURVE 2	65 MPH	13345.50	NC	2,282.325	400.0	NC
CURVE 3	65 MPH	22000.00	NC	561.260	400.0	NC
CURVE 4	65 MPH	29172.00	NC	1,476.270	400.0	NC
CURVE 5	65 MPH	18928.00	NC	929.910	400.0	NC
CURVE 6	65 MPH	7400.00	0.026	1,003.000	400.0	0.026
CURVE 7	65 MPH	70000.00	NC	1,717.530	400.0	NC
CURVE 8	65 MPH	9795.00	RC	1,332.550	400.0	RC
CURVE 9	65 MPH	13164.00	NC	1119.0	400.0	NC
CURVE 10	65 MPH	13164.00	NC	1,119.00	400.0	NC

Table 6-6 | Horizontal Geometry: SB I-95

Curve No.	Proposed Geometry				Design Criteria	
	Design Speed (MPH)	Radius (Feet)	Super-elevation (e)	Length (Feet)	FDM (Length)	FDM (e)
CURVE 1	65 MPH	8000.00	0.024	609.300	400.0	0.024
CURVE 2	65 MPH	11471.25	NC	1,439.770	400.0	NC
CURVE 3	65 MPH	13092.00	NC	1,001.000	400.0	NC
CURVE 4	65 MPH	13164.00	NC	1,000.080	400.0	NC
CURVE 5	65 MPH	13164.00	NC	732.88	400.0	NC

6.4.3 Ingress/Egress Ramps

There are five proposed ingress/egress ramps that will provide direct connection to and from the Express Lanes and Broward Boulevard. The proposed horizontal geometry for each ramp is summarized in **Tables 6-7 to 6-11**.

Table 6-7 | Horizontal Geometry: Ramp A – Relocated Broward GP Exit

Curve No.	Proposed Geometry				Design Criteria	
	Design Speed (MPH)	Radius (Feet)	Super-elevation (e)	Length (Feet)	FDM (Length)	FDM (e)
CURVE 1	45	1938.00	0.048	452.30	400.0	0.048
CURVE 2	45	3085.00	0.032	442.33	400.0	0.032

Table 6-8 | Horizontal Geometry: Ramp B – NB Express Lanes Egress

Curve No.	Proposed Geometry				Design Criteria	
	Design Speed (MPH)	Radius (Feet)	Super-elevation (e)	Length (Feet)	FDM (Length)	FDM (e)
CURVE 1	45	15350.00	NC	591.27	400.0	NC
CURVE 2	45	1385.00	0.063	293.46	400.0	0.063
CURVE 3	45	1885.00	0.050	519.88	400.0	0.050

Table 6-9 | Horizontal Geometry: Ramp C – SB Express Lanes Ingress

Curve No.	Proposed Geometry				Design Criteria	
	Design Speed (MPH)	Radius (Feet)	Super-elevation (e)	Length (Feet)	FDM (Length)	FDM (e)
CURVE 1	45	9950.00	NC	347.06	400.0	NC
CURVE 2	25	250.00	0.080	229.46	400.0	0.077
CURVE 3	25	250.00	0.030	228.68	400.0	0.030

The horizontal geometry for Ramp C has been optimized in order to attain acceleration and gap acceptance lengths as close as feasible to those suggested by American Association of State Highway and Transportation Officials (AASHTO) Figure 10-69. To provide these acceleration and gap acceptance lengths, an inside shoulder width reduction to 3-feet is required along the southbound express lanes due to a conflicting column of the existing former HOV Park-and-Ride access ramps. This shoulder width reduction has been listed in Section 6.6.2 Design Exceptions.

Table 6-10 | Horizontal Geometry: Ramp D – NB Express Lanes Ingress

Curve No.	Proposed Geometry				Design Criteria	
	Design Speed (MPH)	Radius (Feet)	Super-elevation (e)	Length (Feet)	FDM (Length)	FDM (e)
CURVE 1	40	1595.00	0.046	406.72	400.0	0.0
CURVE 2	40	1285.00	0.058	420.440	400.0	0.058
CURVE 3	40	15015.00	0.020	337.56	400.0	0.020

Table 6-11 | Horizontal Geometry: Ramp E – SB Express Lanes Egress

Curve No.	Existing Curve Parameters				Design Criteria	
	Design Speed (MPH)	Radius (Feet)	Super-elevation (e)	Length (Feet)	FDM (Length)	FDM (e)
CURVE 1	35	1000.00	0.080	268.170	400.0	0.080
CURVE 2	45	1272.125	0.068	307.59	400.0	0.068

The proposed vertical geometry for all ingress/egress ramps are elevated to provide enough vertical clearance for all roads located below; a minimum of 16.5’ vertical clearance. Vertical geometry details for each ramp is summarized in **Tables 6-12 to 6-16**.

Table 6-12 | Vertical Geometry: Ramp A – Relocated Broward GP Exit

Criteria	Proposed Design Value
Design Speed	45 MPH
Minimum Grade	0.121%
Maximum Grade	4.000%
Vertical Curve Lengths K_{crest} (required) = 98 K_{sag} (required) = 79	VC1(sag) - 380' ($K_{provided}$ = 98) VC2(crest) -1,160' ($K_{provided}$ = 153)
Clearance under Existing Roadways	16.5'
Clearance over RR	N/A

Table 6-13 | Vertical Geometry: Ramp B – NB Express Lanes Egress

Criteria	Proposed Design Value
Design Speed	45 MPH
Minimum Grade	0.275%
Maximum Grade	5.000%
Vertical Curve Lengths K_{crest} (required) = 98 K_{sag} (required) = 79	VC1(sag) - 358' ($K_{provided}$ = 79) VC2(crest) - 576' ($K_{provided}$ = 98) VC3(crest) - 240' ($K_{provided}$ = 98) VC4(sag) - 217' ($K_{provided}$ = 79)
Clearance over Existing Roadways	16.5'
Clearance over RR	N/A

Table 6-14 | Vertical Geometry: Ramp C – SB Express Lanes Ingress

Criteria	Proposed Design Value
Design Speed	25 MPH (VC2) 30 MPH (VC 1, VC3 and VC4)
Minimum Grade	-4.500%
Maximum Grade	3.970%
Vertical Curve Lengths K_{crest} (required) = 19, 31 K_{sag} (required) = 26, 37	VC1(sag) - 228.2' ($K_{provided}$ = 37) VC2(crest) - 254' ($K_{provided}$ = 37) VC3(sag) - 200' ($K_{provided}$ = 40) VC4(crest) - 94' ($K_{provided}$ = 34)
Clearance over Existing Roadways	16.5'
Clearance over RR	24.25'

Table 6-15 | Vertical Geometry: Ramp D – NB Express Lanes Ingress

Criteria	Proposed Design Value
Design Speed	40 MPH
Minimum Grade	0.079%
Maximum Grade	5.000%
Vertical Curve Lengths K_{crest} (required) = 70 K_{sag} (required) = 64	VC1(sag) - 420' ($K_{provided}$ = 64) VC2(crest) - 820' ($K_{provided}$ = 70) VC3(sag) - 330' ($K_{provided}$ = 65)
Clearance over Existing Roadways	16.5'
Clearance over RR	N/A

Table 6-16 | Vertical Geometry: Ramp E – SB Express Lanes Egress

Criteria	Proposed Design Value
Design Speed	35 MPH (VC1 and VC2) 45 MPH (VC3 and VC4)
Minimum Grade	0.079%
Maximum Grade	5.000%
Vertical Curve Lengths K_{crest} (required) = 98 K_{sag} (required) = 79	VC1(sag) - 268' ($K_{provided}$ = 49) VC2(crest) - 334' ($K_{provided}$ = 47) VC3(crest) - 381' ($K_{provided}$ = 98) VC4(sag) - 404' ($K_{provided}$ = 79)
Clearance over Existing Roadways	16.5'
Clearance over RR	N/A

6.5 Access Management

Westbound to southbound access at SW 22nd Avenue will be provided to bus traffic only by a signalized full median opening.

Access management throughout the rest of the study limits will remain the same.

6.6 Design Variations and Exceptions

Design variations necessary for the Preferred Alternative, both along I-95 and Broward Boulevard include the following:

6.6.1 Design Variations

I-95:

- Horizontal Curve Lengths (ramps)
 - Variation required due to minimum horizontal curve length not met along Ingress/Egress ramps B, C, D and E as listed in tables 6-8 through 6-11, minimum 228.68-feet provided, 400-feet required
- Border Width
 - Variation required due to border width not met, minimum 0.9-feet provided (along the SFRC), 94-feet required

Broward Boulevard:

- Horizontal Curve Length
 - Variation required due to minimum horizontal curve length not met, nine horizontal curves have substandard lengths as listed in tables 6-2 and 6-3, minimum 154.24-feet provided, 400-feet required
- Bicycle Lane width
 - Variation required due to proposed bicycle lanes transitioning down to match existing east of NW 18th Avenue and stay within the existing right-of-way, minimum 4-feet provided, 7-feet required
- Border Width
 - Variation required due to border width not met, minimum 7-feet provided, 14-feet required
- Median Width
 - Variation required due to minimum median width not met, 16.3-feet provided, 22-feet required
- Shoulder Width
 - Variation for NB to WB exit ramp, 2.5-feet provided, 10-feet required

6.6.2 Design Exceptions

I-95:

- Lane Width
 - Exception for lane width consistent with 3A-1 design within the PD&E study limits, 11-feet provided, 12-feet required. The 3A-1 design contains 11-feet express lanes and auxiliary lanes between the Broward Boulevard Park-and-Ride ramp and the I-595 Collector-Distributor system due to bridge pier spacing.
- Shoulder Width
 - Exception for shoulder width consistent with 3A-1 design within the PD&E study limits, 7-feet provided, 10-feet required. The 3A-1 design contains less than full width shoulders between the Broward Boulevard Park-and-Ride ramp and the I-595 Collector-Distributor system due to bridge pier spacing and existing median sign structures that are to remain.
 - Exception for shoulder width along southbound 95 express lanes required to provide the greatest possible merging length for Ramp C connection to SB 95 Express, 8-feet provided, 12-feet required

6.7 Lighting

The existing lighting conditions as constructed by I-95 Express phase 3A-1 will be maintained in the proposed improvements.

6.8 Utilities

The Preferred Alternative can possibly impact the distribution overhead line crossing I-95 approximately 650’ north of Davie Boulevard and a high voltage electrical transmission line crossing I-95 over the NW 6th. Underground utilities may be impacted by drainage modifications, new signal mast arms, and overhead sign structures. Resurfacing will also impact existing manholes located within the pavement. Coordination during the design phase will be required with the utility owners.

6.9 Preliminary Drainage Analysis

6.9.1 Proposed Drainage Systems

The proposed drainage design consists of closed collection and conveyance drainage systems interconnected by piping to modified existing stormwater treatment facilities and French drains to collect, convey, treat, and attenuate stormwater runoff for the controlling design storm events. The proposed treatment facilities, consisting of wet and dry ponds, swales and French drain have been determined based on an analysis of various factors which is discussed in Section 7.0 of the Preliminary Drainage Analysis Report. The proposed stormwater management facility type is based on the facility type that provides the most practical, cost-effective solution for the Department to achieve the treatment and attenuation permitting requirements associated with the proposed improvements, while also minimizing impacts to the public. The recommended drainage design and stormwater management facility type is discussed later in the following sections.

6.9.2 Stormwater Management System Design

6.9.2.1 Project Datum

The vertical datum used in this report and calculations is NAVD 88. The datum shift was determined using the National Geodetic Survey VERTCON online tool.

The datum shift used to convert National Geodetic Vertical Datum (NGVD) 29 to NAVD 88 within the study area is summarized below in **Table 6-17**.

Table 6-17 | Datum Conversion from NGVD 29 to NAVD 88

Location	Latitude	Longitude	Shift (ft.)
Broward Boulevard	26° 07’ 18” N	80° 10’ 55” W	(-)1.58

6.9.2.2 Control Elevations

6.9.2.2.1 Tailwater Elevations

The SFWMD Technical Memorandum “An Atlas of Eastern Broward County Surface Water Management Basins” was referenced in determining the controlling tailwater elevation(s) of the North and South Forks of the New River. Since the project lies to the east of SFWMD control structures, the canals are tidally controlled, and have no maintained elevation. Accordingly, existing SFWMD permit documentation was referenced in order to determine the average high water (tailwater) elevations of the canals. Based on existing permits for the various drainage systems with the project limits, the tailwater elevations are constant for all systems defined for the project. The average high water elevation of the North Fork of the New River and the South Fork of the New River (C-11) Canal was determined to be 2.00 feet. NGVD (0.42 feet NAVD). In the Preliminary Drainage Analysis Report, refer to Figure 8 of Appendix A for the SFWMD Technical Memorandum, and to Appendix H for existing permit documentation.

6.9.2.2.2 Seasonal High Groundwater Table

Although no in-situ geotechnical data has been provided by FDOT for this project, preliminary research was performed to determine the SHGWT elevation within the study limits. Specifically, the average high water data for the adjacent North and South Forks of the New River, which control and influence groundwater table elevations throughout the project area, was used to determine the assumed SHGWT elevation of 2.00 feet. NGVD (0.42 feet. NAVD). The assumed SHGWT elevation is consistent with existing permits for the various drainage systems within the project limits, as well as existing permits for adjacent properties.

6.9.2.3 Roadway Base Protection

FDOT has established the following criterion for base protection of roads:

- Freeways and Rural Multilane Mainline facilities shall provide a 3-foot clearance for the roadway base course above the base clearance water elevation (i.e. SHGWT). Using a base clearance water elevation (SHGWT) of 2.00 feet NGVD (0.42 feet NAVD), the minimum roadway base elevation allowable for the project along I-95 mainline is 5.00 feet NGVD (3.42 feet NAVD).
- Ramps shall provide a 2-foot clearance for the roadway base course above the base clearance water elevation (SHGWT). Using a base clearance water elevation (SHGWT) of 2.00 feet NGVD (0.42 feet NAVD), the minimum roadway base elevation allowable for the ramps is 4.00 feet NGVD (2.42 feet NAVD).
- All other facilities shall provide a 1-foot clearance for the roadway base course above the base clearance water elevation (SHGWT). Using a base clearance water elevation (SHGWT) of 2.00 feet NGVD (0.42 feet NAVD), the minimum roadway base elevation allowable for all other facilities is 3.00 feet NGVD (1.42 feet NAVD).

6.9.2.4 Conceptual Drainage Design Recommendations

Based on the proposed roadway improvements, the existing dry detention swales and ponds will be impacted and reduced by roadway widening and new ramps along I-95. However, the portions of select stormwater management facilities that will remain, will be modified, expanded, deepened, have their side slopes steepened, and/or improved with retaining wall in lieu of embankment in order to accommodate the increased runoff from the roadway and new ramps, as well as any loss of existing storage. Existing control structures for Broward Boulevard and the Park & Ride drainage systems will remain in place, with a new structure proposed to control the two ponds on either side of Broward Boulevard. All control structures for the I-95 drainage systems will be modified. All existing outfalls will remain in place, and will continue to function as in the existing condition. AdICPR hydrologic and hydraulic models demonstrate that pre-vs-post discharge requirements are met, and that peak stages are not increased by the project.

The proposed stormwater management facilities meet FDOT drainage criteria, as well as SFWMD permit (water quality and quantity) criteria. Refer to the Appendix C from the Preliminary Drainage Analysis Report for the Post-Development Drainage Maps for the preferred interchange design, Post-Development Land-Use Tables included in Appendices D through Appendix G from the Preliminary Drainage Analysis Report for each system, as well as pre-development and post-development curve number calculations and area breakdowns. The peak discharge rates and peak stages for the 10-year – 24-hour, 25-year – 72-hour, and 100-year – 24-hour design storms are shown in the Drainage System Summary Tables, for each System included in Appendices D through G from the Preliminary Drainage Analysis Report for each system.

6.10 Structures

6.10.1 Horizontal and Vertical Clearance

The primary function of vertical clearance to structures going over roadways or railroads consists of providing safe passage to tall design vehicles and rail cars beneath these structures. The FDOT Florida Design Manual (FDM) specifies that the highest point on the roadway below a bridge structure must measure a minimum of 16.5-feet to the lowest point (low member) beneath the structure. This includes provisions for a future underpass resurfacing of 6 inches over the existing pavement elevation. For railroad underpasses, a minimum 23.5-feet vertical clearance is recommended which includes allowance for 12-inches of railroad track adjustments. The SFRC however, has a greater clearance requirement set at 24.25-feet for electrified rail facilities.

AASHTO requires a minimum vertical clearance of 16-feet for structures passing over roadways including auxiliary lanes and the usable width of shoulders. Further guidance allows a minimum vertical clearance of 14-feet in highly urbanized areas provided there is an alternate facility with the minimum 16-feet clearance. For railroad underpasses, AASHTO recommends a minimum vertical clearance of 23-feet.

The vertical clearance for all the bridges along Broward Boulevard meet the design criteria. Coordination during the design phase will be required with SFRC.

The horizontal clearance underneath the existing bridges is the lateral distance from the roadway edge of travel lane to the bridge abutment or piers. The horizontal clearance requirements for most roadside features and objects are based on providing the required clear zone. Both the FDOT FDM and AASHTO require bridge piers and abutment walls to be placed outside the clear zone unless shielded by a crash worthy barrier. For roadways over railroads, the FDOT Plans Preparation Manual (PPM) requires 18-feet horizontal clearance with crash walls or 25-feet if no crash walls are provided from the centerline of the outside tracks to the face of pier cap, bent cap, or any other adjacent structure.

The bridge over I-95 is adequately protected by barrier walls at the outside piers and guardrails at the median pier. The minimum horizontal clearance for the bridges over the railroad tracks is approximately 15-feet which is less than the required 18-foot clearance with crash walls. This existing horizontal clearance deficiency may have been documented during construction of the crash walls and a design variation obtained.

6.10.2 Broward Boulevard over SFRC Railroad and Access Road to Park-and-Ride Facility

6.10.2.1 Bridge Analysis

The proposed improvements require the bridge width be increased to accommodate the proposed new roadway typical section. Major modifications to the under route are also proposed for the bus terminal facility. Widening the existing bridge is not a viable option due to the deficient vertical and horizontal

clearances, the age of the structure, and the proposed improvements beneath, therefore, replacement is the only viable and reasonable option for this alternative.

This bridge is proposed to be replaced to facilitate the installation of the bus terminal facility beneath the elevated roadway. The bridge will span over the transit access facility as well as the access road and the existing SFRC railroad tracks and right-of-way.

6.10.2.2 Proposed Bridge Configuration

Based on the Preferred Alternative, PD&E Preliminary Concept Plans were prepared to illustrate the proposed bridge configuration at each crossing. Additionally, the Concept Plans include typical sections and construction phasing plans for each bridge.

The new bridge structure is approximately 398.5-feet long consisting of four spans ranging in lengths from 90-feet to 113.5-feet. The substructure consists of vertical face mechanically stabilized earth (MSE) wall type abutments and multi-column piers. All substructure units are anticipated to be parallel and situated 90° from the centerline of construction. The locations of the bridge abutments are dictated by the proximity of the sidewalk and bus U-Turn roadway on the west side and the Railroad right-of-Way on the east end. The piers are situated within proposed traffic islands and positioned to honor the FDM requirements of six feet to the edge of travel lane.

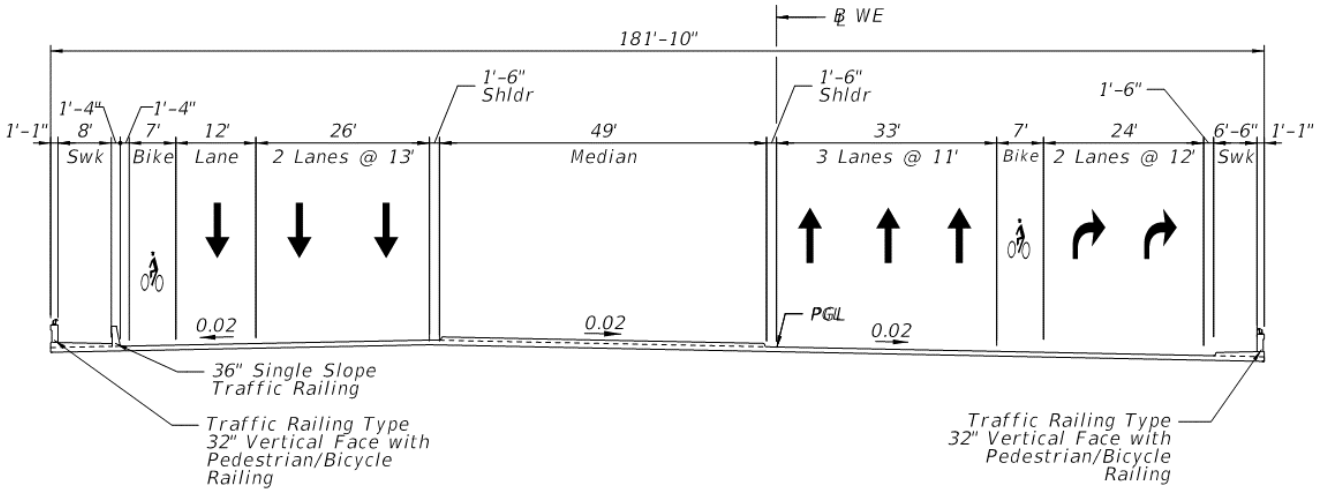
The bridge deck width carries the proposed typical section and varies from 155'-0" to 246'-0" to accommodate the eastbound taper for the I-95 SB on-ramp as well as the I-95 NB off-ramp and I-95 SB on-ramp curved alignments.

The vertical clearance beneath the bus terminal facility is over 14-feet under the pier caps to allow for unobstructed passage of the buses circulating through the facility. The access roadway clearance exceeds the minimum requirement of 16.5-feet and over the railroad track corridor the vertical clearance is 24.75-feet, exceeding the required 23.5-feet for railroad underpasses and the required 24.25-feet for electrified railroad. The horizontal clearance meets the criteria requirements for the roadway and railroad corridor. Within the transit facility, standard traffic barrier walls are proposed for the columns adjacent to the edge of pavement without sufficient lateral clearance. Refer to **Appendix A** for the existing and proposed bridge span arrangements and horizontal/vertical clearances for the proposed Broward Boulevard Bridge replacement over the SFRC.

The vertical geometry has been set to achieve the vertical clearances mentioned above as well as meet the existing grades on Broward Boulevard and connections to I-95. The horizontal geometry has been set based on minimizing right-of-way impacts and maintaining adequate bridge width to carry the existing traffic during the phased construction of the proposed new bridge.

The proposed typical section accommodates three through lanes, a bike lane and raised sidewalks in the eastbound and westbound directions, as well as two lanes eastbound for the access ramps to I-95. The bridge also accommodates a 49-foot raised median for the future bus bay that will connect passengers vertically to the bus terminal facility below. **Figure 6-5** shows the proposed bridge typical section for Broward Boulevard over the SFRC Railroad and Access Road to the Park-and-Ride Facility.

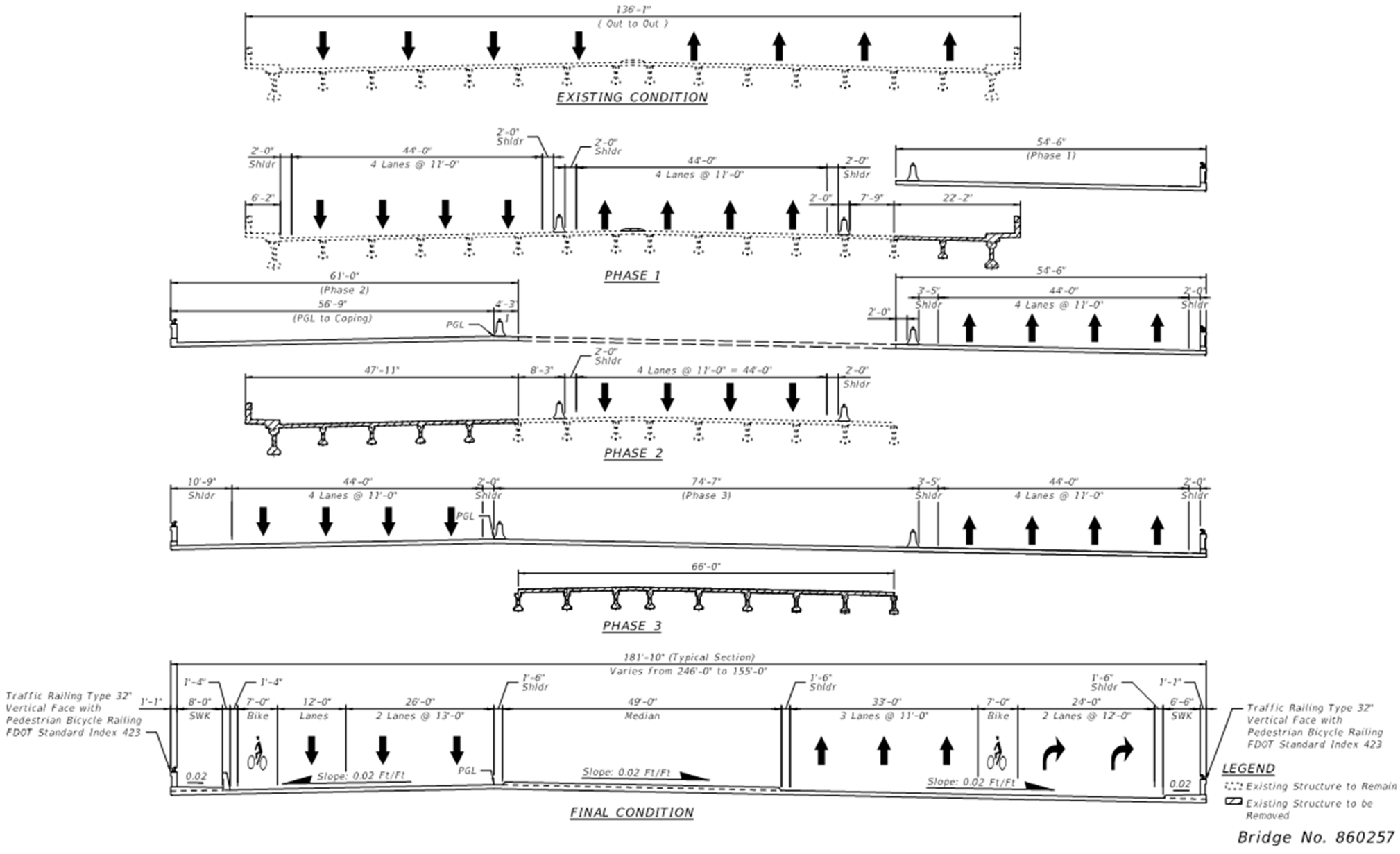
Figure 6-5 | Typical Section: Broward Boulevard Bridge over SFRC Railroad



6.10.2.3 Construction Sequence

The existing bridge is proposed to be removed in phases and disposed of during construction of the new bridge. Coordination is on-going with the Department for the location where the demolished bridge debris will be deposited. The bridge replacement will be constructed in three phases while accommodating the existing traffic during the entire reconstruction. During Phase 1 the existing traffic will be shifted to the north on the existing bridge while partially removing a portion of the south side to accommodate construction of a portion of the new bridge. During Phase 2, the eastbound traffic is shifted south to the newly completed portion of the new bridge. The westbound traffic is shifted south on the existing bridge and a portion of the existing bridge on the north side is removed to accommodate construction of the new bridge on the north side. During Phase 3 the westbound traffic is shifted north to the newly completed portion of the new bridge. The remaining center portion of the existing bridge is then removed, and the new bridge is completed. In the final phase, the raised sidewalks, intermediate traffic railing and raised median are built, and the new lanes striped delineating the new traffic pattern and bicycle lanes. The construction sequence is illustrated in **Figure 6-6.**

Figure 6-6 | Construction Sequence



6.10.3 Broward Boulevard over I-95

The proposed improvements require the bridge width be increased to accommodate the proposed new roadway typical section. Major modifications to the under route are also proposed for the new I-95 Express Lanes. Widening the existing bridge is not a viable option due to the required horizontal clearance required for the Express Lanes and the proposed improvements beneath, therefore, replacement is the only viable and reasonable option for this alternative.

This bridge is proposed to be replaced to accommodate the new Express Lanes beneath and the proposed wider bridge typical section. The bridge will span over I-95 and the new Express Lane facility.

6.10.3.1 Proposed Bridge Configuration

The new bridge structure is approximately 276-feet long consisting of two spans of 138-feet long each. The substructure consists of vertical face MSE wall type abutments and a multi-column pier. All substructure units are anticipated to be parallel and situated approximately 90° to the tangent of the horizontal curved alignment. The locations of the bridge abutments are dictated by the proximity of the roadway shoulders and traffic railing barrier on both the east and west side of the bridge. The pier is situated within the grass median shielded by traffic railing barriers or guardrail in accordance with the FDM requirements of clear zone criteria.

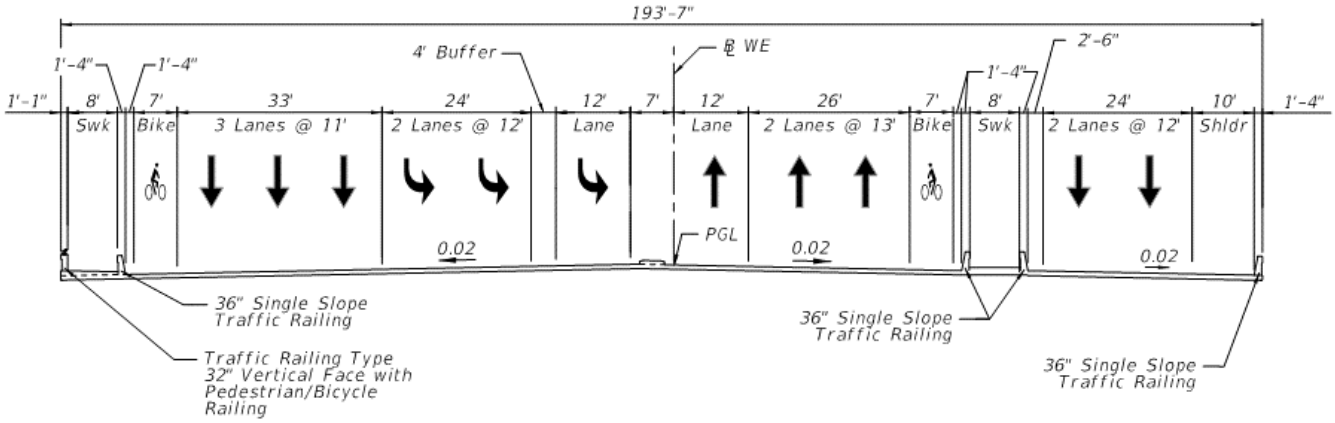
The bridge deck width carries the proposed typical section and varies from 188'-1" to 205'-2" to accommodate the westbound left turn movement to the I-95 SB on-ramp and the I-95 NB off-ramp to westbound Broward Boulevard.

The vertical clearance to the I-95 mainline roadway beneath is 17.64-feet under the superstructure beams. The horizontal clearance meets the criteria requirements based on providing the appropriate shielding barriers to the substructure elements.

The vertical geometry has been set to achieve the vertical clearances mentioned above as well as meet the existing grades on Broward Boulevard and connections to and from I-95. The horizontal geometry has been set based on minimizing right-of-way impacts and maintaining adequate bridge width to carry the existing traffic during the phased construction of the proposed new bridge.

The proposed typical section accommodates three through lanes, a bike lane and raised sidewalks in the eastbound and westbound directions, as well as 2 lanes westbound to accommodate the northbound to westbound off-ramp from I-95 and three westbound left turn movements to the I-95 SB on-ramp. The bridge also accommodates a variable width raised median separating the westbound and eastbound traffic. **Figure 6-7** shows the proposed bridge typical section for Broward Boulevard over I-95.

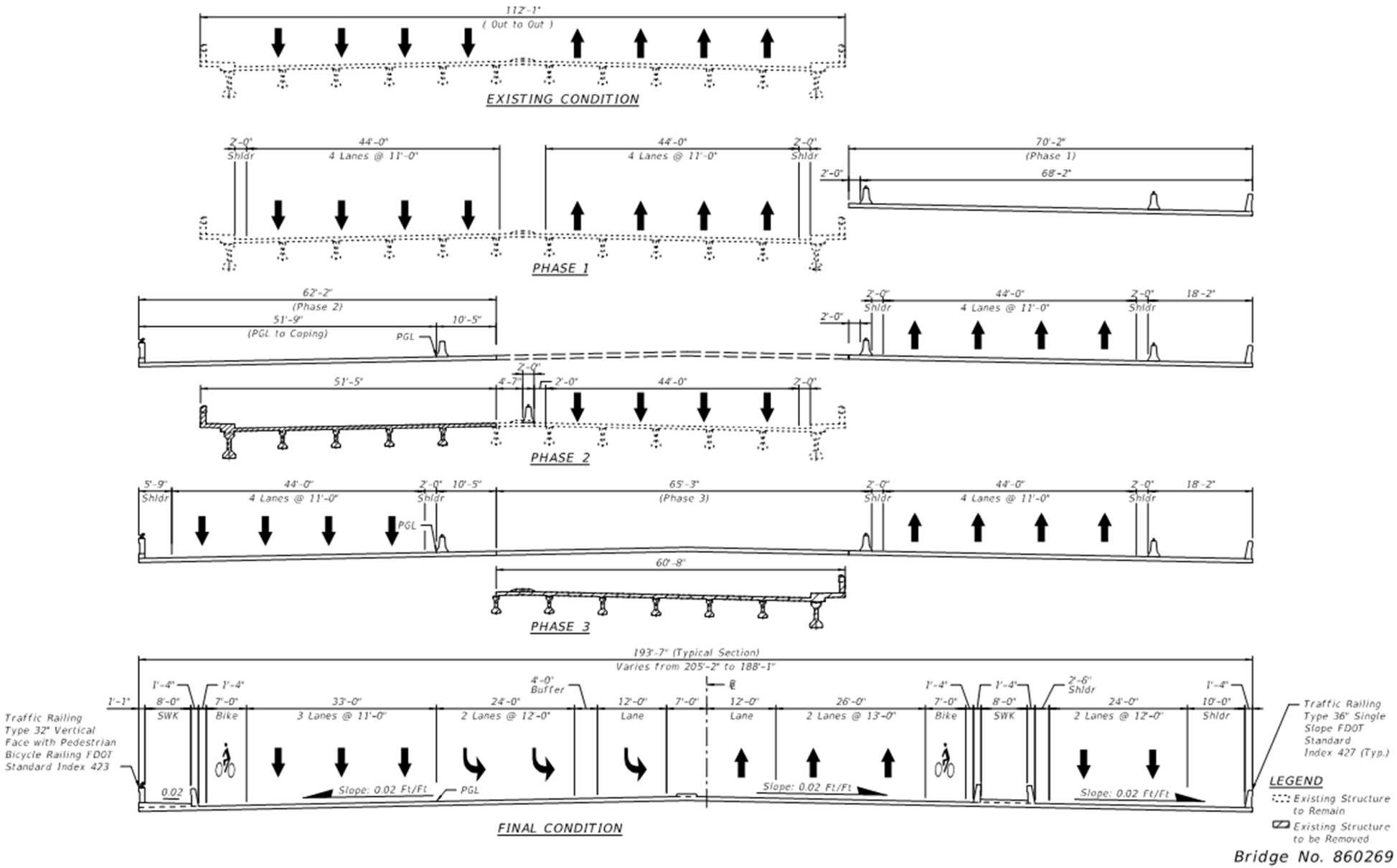
Figure 6-7 | Typical Section: Broward Boulevard Bridge over I-95



6.10.3.2 Construction Sequence

The existing bridge is proposed to be removed in phases and disposed of during construction of the new bridge. Coordination is on-going with the Department for the location where the demolished bridge debris will be deposited. The bridge replacement will be constructed in three phases while accommodating the existing traffic during the entire reconstruction. During Phase 1 the existing traffic will remain on the existing bridge while a portion of the new bridge on the south side is built. During Phase 2, the eastbound traffic is shifted south to the newly completed portion of the new bridge. The westbound traffic is shifted south on the existing bridge and a portion of the existing bridge on the north side is removed to accommodate construction of the new bridge on the north side. During Phase 3 the westbound traffic is shifted north to the newly completed portion of the new bridge. The remaining portion of the existing bridge is then removed, and the new bridge is completed. In the final phase, the raised sidewalks, intermediate traffic railing and raised median are built, and the new lanes striped delineating the new traffic pattern and bicycle lanes. This construction sequence is illustrated in **Figure 6-8.**

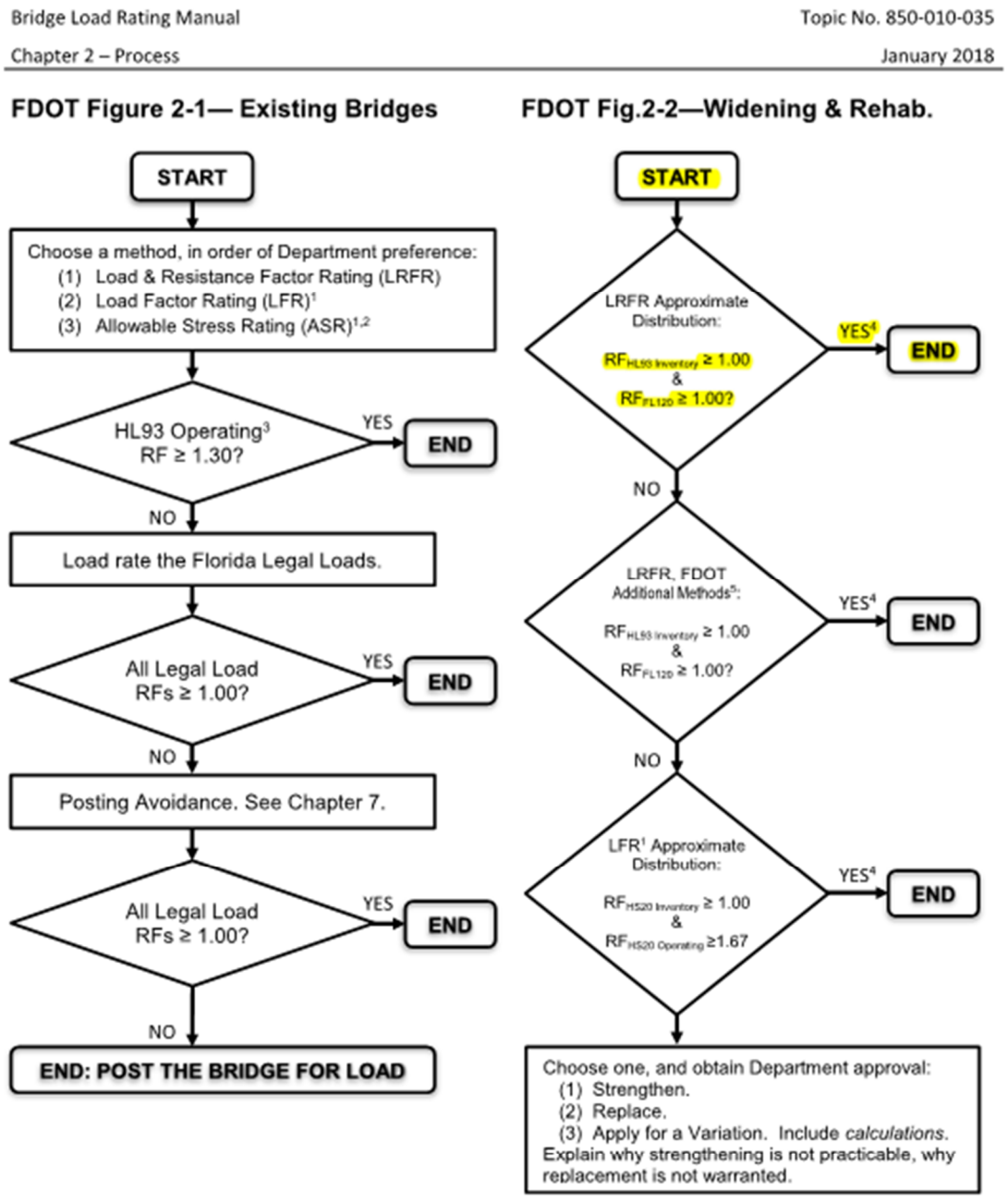
Figure 6-8 | Construction Sequence



6.10.4 I-95 over NW 6th Street (Sistrunk Boulevard) Bridge Widening

The I-95 over NW 6th Street bridge widening is proposed in the Northbound and Southbound directions. This would be a second widening following widening being performed as part of the I-95 Phase 3A-1 project. Since widening was possible in the Phase 3A-1 project in accordance with the FDOT Bridge Load Rating Manual flowchart (**Figure 6-9**), a future widening should be not be an issue. The load rating data shows the controlling rating to be the permit truck at 1.0 and a HL-93 inventory of 1.04. The widening portion would be supported on Florida-I 36 beams in order to avoid lowering the vertical clearance of the bridge.

Figure 6-9 | FDOT Bridge Load Rating Manual Flowchart



1. LFR and ASR are not permitted among spans exceeding 200 feet.
2. ASR is not permitted for bridges on the National Highway System.
3. At existing bridges, if $RF_{HL93\ Operating} < 1.30$, or if LFR/ASR, assess the Legal Loads.
4. Widenings and rehabilitations need not assess the Florida Legal Loads; the HL93, FL120, and HS20 Rating Factor requirements are sufficient.
5. FDOT Additional Methods can be found at SDG 7.1.1 C.

6.10.5 Ingress/Egress Ramps

6.10.5.1 Ramp B

This ramp is a four-span double steel box girder bridge. The typical section consists of steel box girders with an overall superstructure height of 7'. The deck width is 29'-8" and includes two 36" Single-Slope traffic railings. The bridge contains end bents at the beginning and end of the bridge as well as three interior supports. Due to potential vertical clearance issues, piers 2, 3 and 4 are shown as integral. Pier 3 is an integral straddle bent due to limited room for pier placement while the braided ramp crosses over I-95.

6.10.5.2 Ramp C

This ramp is a two-span steel plate girder bridge. The typical section consists of steel plate girders with an overall superstructure height of 6'. The deck width is 30'-0" and includes two 42" Single-Slope traffic railings. The bridge contains end bents at the beginning and end of the bridge as well as an interior support in the median of I-95. The interior support is shown as a traditional pier since it does not interfere with the required 16'-6" required vertical clearance.

6.10.5.3 Ramp D

This ramp is a three-span double steel box girder bridge. The typical section consists of steel box girders with an overall superstructure height of 7.5'. The deck width is 30'-0" and includes two 42" Single-Slope traffic railings. The bridge contains end bents at the beginning and end of the bridge as well as two interior supports. Due to potential vertical clearance issues, pier 2 is shown as an integral straddle bent. Pier 3 may have sufficient clearance to act as a non-integral straddle bent as well as provide a more economical option. Both interior supports are straddle bents due to limited room for pier placement while the braided ramp crosses over I-95.

6.10.5.4 Ramp E

This ramp is a six-span double steel box girder bridge. The typical section consists of steel box girders with an overall superstructure height of 7.5'. The deck width is 30'-0" and includes two 42" Single-Slope traffic railings. The bridge contains end bents at the beginning and end of the bridge as well as five interior supports. Due to potential vertical clearance issues, piers 3, 4 and 5 are shown as integral. Piers 3 and 4 are straddle bents due to limited room for pier placement while the braided ramp crosses over I-95.

6.10.6 Park-and-Ride Ramp to Southbound 95 Express Bridge 860600 Modifications

This existing ramp is a 1345 long, seven-span double steel box girder bridge. The bridge was constructed in 1995 and currently has a bridge sufficiency rating of 98.1 and a health index of 98.59. These condition ratings show that the bridge is in excellent condition. Due to the introduction of the new ingress ramp to SB 95 Express from Broward Boulevard, Pier 2 of this existing bridge is in conflict with the proposed 95 Express southbound shoulder and shoulder mounted barrier wall. Proposed modifications to the existing bridge will be required to either relocate Pier 2 (option 1) or the construction of a straddle bent over SB I-95, with an offset pier to the inside (option 2). These alternatives are concepts and the details of the

improvements will be determined as part of the Design phase of the project, through completion of the Bridge Development Report (BDR). A more detailed explanation of both options follows:

- Option 1 - Relocation of Pier 2 approximately 41 feet south would place the pier within the median and provide the necessary horizontal clearance to construct the full shoulder and barrier wall on SB 95 Express. To accomplish the relocation of the pier the complete replacement of spans 1L through 4L would be required. Spans 1L through 4L represent a continuous unit of the existing steel box girder bridge and is isolated structurally from spans 5L through 7L, thus making such improvement possible without affecting the remaining spans.

- Option 2 - Relocation of Pier 2 approximately 41 feet south would also place the pier within the median and provide the necessary horizontal clearance to construct the full shoulder and barrier wall on SB 95 Express. To accomplish the relocation of the pier, the strengthening of the existing spans 1L through 4L would be required. Spans 1L through 4L represent a continuous unit of the existing steel box girder bridge and is isolated structurally from spans 5L through 7L, thus also making such improvement possible without affecting the remaining spans.

- Option 3 – Replacement of the existing pier 2 with a straddle pier offset to the inside is a possibility by providing temporary supports, while the new inside pier is constructed. The straddle would provide the same expansion support conditions as the existing bridge pier 2, possibly allowing for integration and use of some of the existing piles, supplemented by pin piles to support the new eastside pier support of the straddle.

In all three Options noted above, traffic would have to be temporarily removed from the SB entrance ramp structure for a period of time. This will be further quantified and evaluated during the BDR phase. Refer to **Appendix A** for the layout of Options 1 through 3 described above.

Approximate structural costs for Option 1 and 3 are provided below:

- Option 1: $7.1 M

- Option 3: $1.7 M

Further analysis in the BDR phase is recommended to validate the viability of Option 2, as well as determination of a cost estimate for that potential solution.

6.10.7 Aesthetics

The bridge Aesthetics Level (Level One or Level Two) will be determined during the final design phase.

6.10.8 Potential ITS/TSM&O Features

The proposed ITS improvements will consist of typical ITS devices and will be added to the existing ITS system that is currently connected to the FDOT District Four RTMC. Because of the recent Express Lanes projects the ITS infrastructure on the I-95 freeway mainline within the study area does not require

additional improvements. However below are potential improvements to the existing TSM&O/ITS systems on Broward Boulevard and for the Broward Boulevard and Park-and-Ride:

Additional/Upgrade CCTV camera locations: Due to the geometry of Broward Boulevard to the east of I-95 and the location of the existing CCTV, it is recommended to install an additional CCTV camera location near the W 18 Avenue intersection to ensure 100% video coverage of this area of Broward Boulevard. This CCTV camera shall also be able to view the existing ADMS east of W 18 Avenue for the eastbound direction of travel. Additionally the CCTV camera location near westbound to northbound I-95 shall be upgraded to a high definition (HD), IP-based CCTV camera. The cabinet and cabinet equipment shall also be upgraded.

Broward Park-and-Ride Parking Availability System: A parking availability system will inform motorists of how many parking spaces are available within the Park-and-Ride facility. The required components for this system include an embedded DMS on a static sign prior to the entrance(s) to the Park-and-Ride, a type of vehicle detection system to communicate with the DMS sign to track the number of vehicles entering and exiting the facility, and a minimum of two (2) CCTV cameras to monitor the parking spaces within the facility and the embedded DMS. These ITS devices will need to communicate with the District Four RTMC.

Power Distribution System: Install a power distribution system for AMS complete with permanent generators and automatic transfer switches (ATS) to supply power to the traffic signal systems as well as the AMS ITS devices within the study limits. The components of this system would include generators, ATS, conduit, service wire, transformers, etc. The generators shall be sized approximately the run the equipment in the instance of a power failure.

Fiber Optic Communication System: Upgrade the existing FO backbone to ninety-six (96) strand fiber optic cable (FOC). From a splice vault to the near the bottom of the southbound I-95 off-ramp to a splice vault near W 18 Avenue the existing twelve (12) strand FO backbone shall be replaced with a minimum of one ninety-six (96) strand FOC. The new FOC shall be spliced into the existing ninety-six (96) strand FOC.

6.11 Maintenance of Traffic

6.11.1 Southbound Express Lanes Egress to Broward Boulevard and Northbound Express Lanes Ingress from Broward Boulevard

The proposed roadway widening of I-95 for the Southbound Express Lanes Egress to Broward Boulevard and Northbound Express Lanes Ingress from Broward Boulevard will be accomplished in two phases. The existing I-95 traffic lane configuration will remain open throughout the widening. During Phase 1, the existing lanes will be temporarily restriped to shift towards the inside and widening to the outside will occur in both the northbound and southbound directions. During Phase 2, existing traffic lanes will be shifted to the outside and the Ingress/Egress ramps to enter/exit Broward Boulevard from I-95 express

will be constructed within the inside of I-95 in both the northbound and southbound directions. As a final phase, milling and resurfacing will occur, and the final striping configuration will be placed

6.11.2 Northbound I-95 General Purpose Lanes to Broward Boulevard Ramp and Northbound Express Lanes Egress to Broward Boulevard Ramp

The construction for the northbound I-95 GP lanes to Broward Boulevard ramp and northbound Express Lanes Egress to Broward Boulevard ramp will occur near the overpass with Davie Boulevard. During Phase 1 of the construction of these ramps, the northbound GP lanes to Broward Boulevard ramp will be constructed east of the existing I-95 mainline. During Phase 2, existing traffic lanes will be shifted to the outside and the Northbound I-95 Express Lanes egress ramp to exit to Broward Boulevard from I-95 express will be constructed within the inside of northbound I-95. As a final phase, milling and resurfacing will occur, and the final striping configuration will be placed. The maintenance of traffic typical sections are illustrated in **Figure 6-10** and **Figure 6-11**.

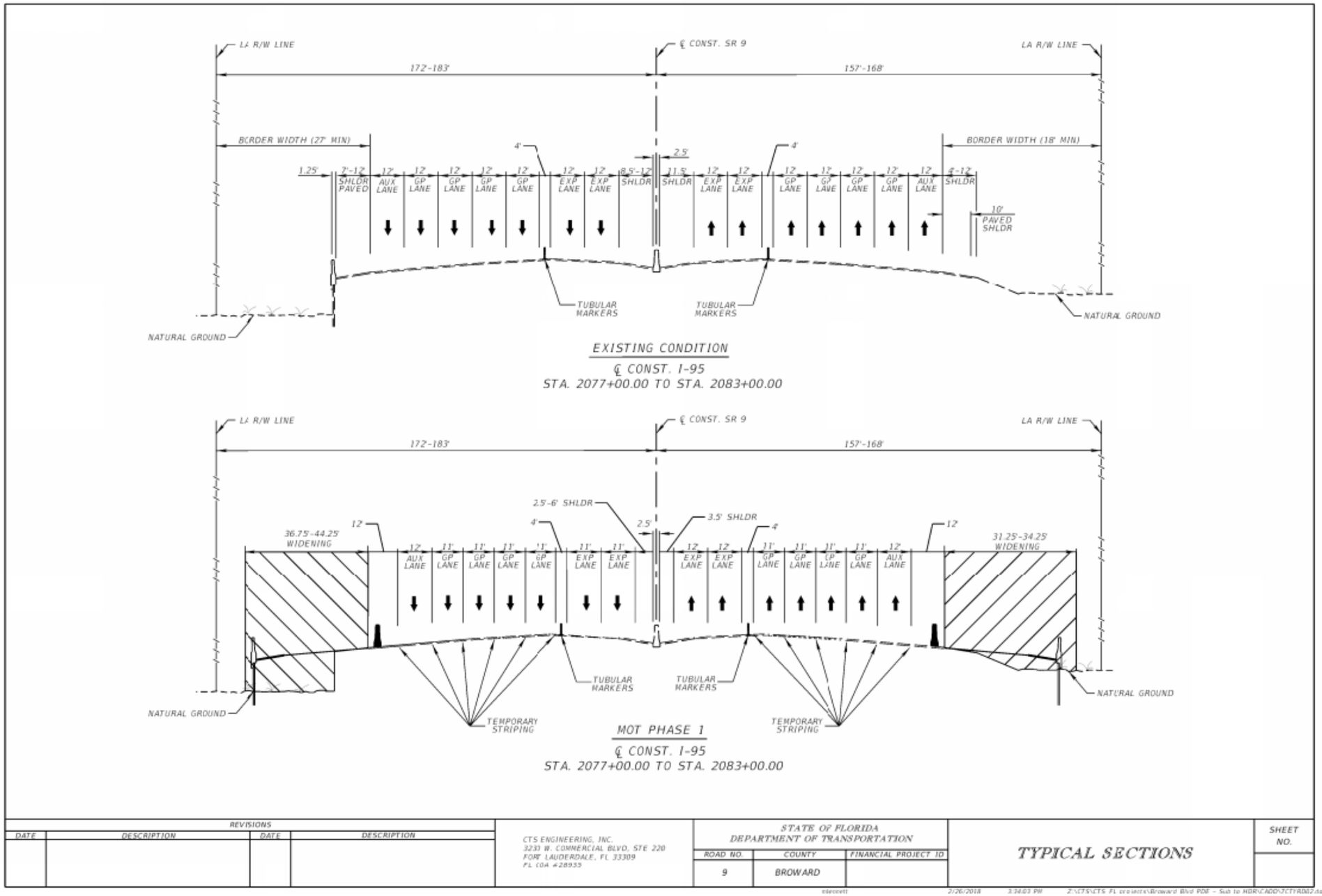
6.11.3 Park-and-Ride Ramp to Southbound 95 Express Bridge 860600 Modification

All three options for the modification of the Park-and-Ride ramp to southbound 95 Express will require full closure of the ramp and a full detour for motorists accessing southbound 95 Express from the Park-and-Ride lot. In addition to the closure of the ramp, lane shifts, lane closures and traffic pacing will be needed for the overhead bridge replacement work to be completed.

6.11.4 Miscellaneous Overhead Structures

For construction of overhead structures (bridges, sign panels) intermittent detours, lane shifts, lane closures and traffic pacing will be needed for bridge work and span sign structure placement. It is recommended to follow techniques described in the FDM Chapter 240.7.1.1..

Figure 6-10 | Maintenance of Traffic Typical Sections



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

CTS ENGINEERING, INC.
3233 W. COMMERCIAL BLVD. STE 220
FORT LAUDERDALE, FL 33309
FL COA #28933

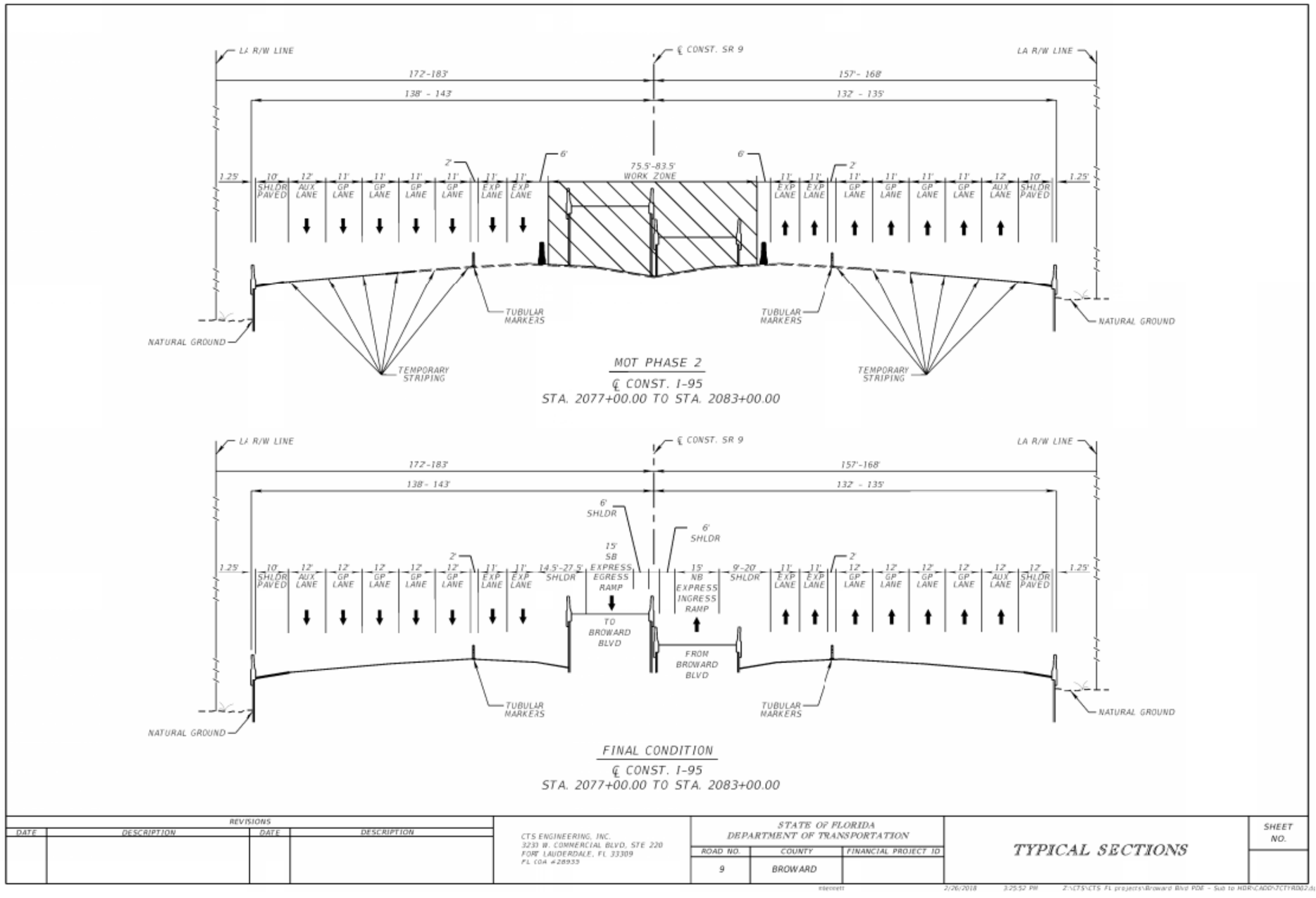
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
9	BROWARD	

TYPICAL SECTIONS

SHEET NO.

Figure 6-11 | Maintenance of Traffic Typical Sections



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

CTS ENGINEERING, INC.
3233 W. COMMERCIAL BLVD. STE 220
FORT LAUDERDALE, FL 33309
FL COA #28933

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
9	BROWARD	

TYPICAL SECTIONS

SHEET NO.

eleonett 2/26/2018 3:25:52 PM Z:\CTS\CTS FL projects\Broward Blvd PDE - Sub to HDR\CADD\7CTYP002.dgn

6.12 Cost Estimates

A construction cost estimate for the Preferred Alternative was prepared using FDOT's Long Range Estimate (LRE) program. Please refer to **Appendix C** for the construction cost estimate that was prepared for the Modified Displaced Left Alternative.

6.13 Environmental Analysis

An environmental analysis was conducted for this PD&E through detailed studies of the Social, Economic, Cultural, Natural, and Physical environments. A detailed discussion of all subjects summarized below and more can be found in the Type 2 Categorical Exclusion and the individual corresponding environmental reports.

6.13.1 Existing Land Use

The study area is mostly comprised of low and medium residential, commercial and service land uses within a 500-foot buffer of the project area. Surface waters in the project area are limited to highway drainage, stormwater features associated with development, and a portion of the North Fork of the New River. These natural land uses are disturbed due to their proximity to dense development. The study area is also home to several large employers and public uses. Community facilities, such as parks and religious institutions, are integrated throughout the study area. The project limits are within the incorporated area of the City of Fort Lauderdale, in Broward County. Existing Land use is shown in **Figures 6-12** and **Figure 6-13.**

6.13.2 Future Land Use

The study area is mostly built out and future land use plans are similar to existing land use. The Preferred Alternative overall does not result in significant land use changes as it is mainly located within the existing right-of- way. The Salvation Army and the gas station partial takes will not result in any land use changes. The relocation of the three businesses would convert the commerce land use of the parcels into transportation land use. Since the area is already built out and the future land use plan is similar to the existing use with slight variation, land use patterns would be expected to remain similar. Future Land use is shown in **Figures 6-14** and **Figure 6-15.**

Figure 6-12 | Existing Land Use

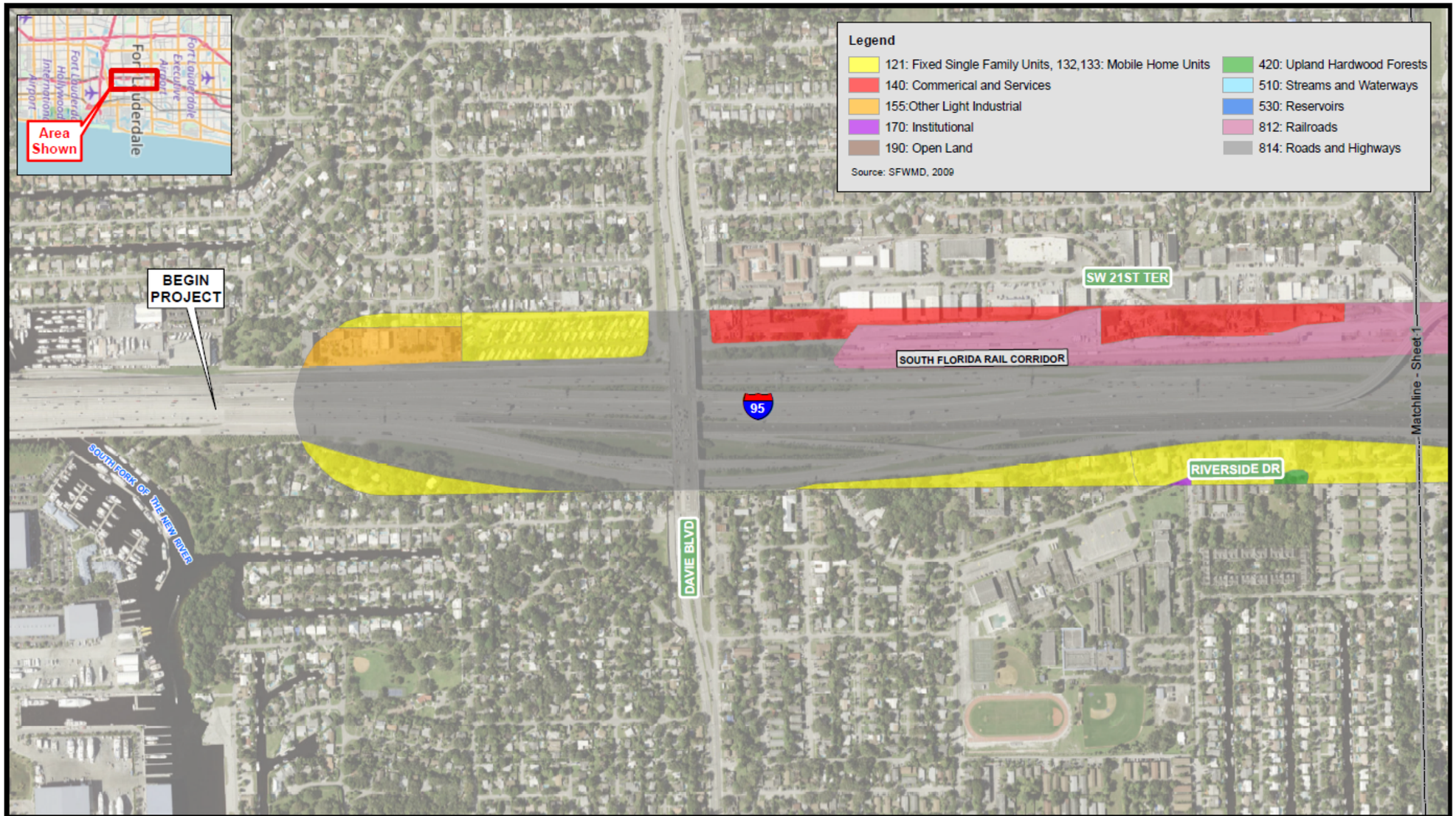


Figure 6-13 | Existing Land Use

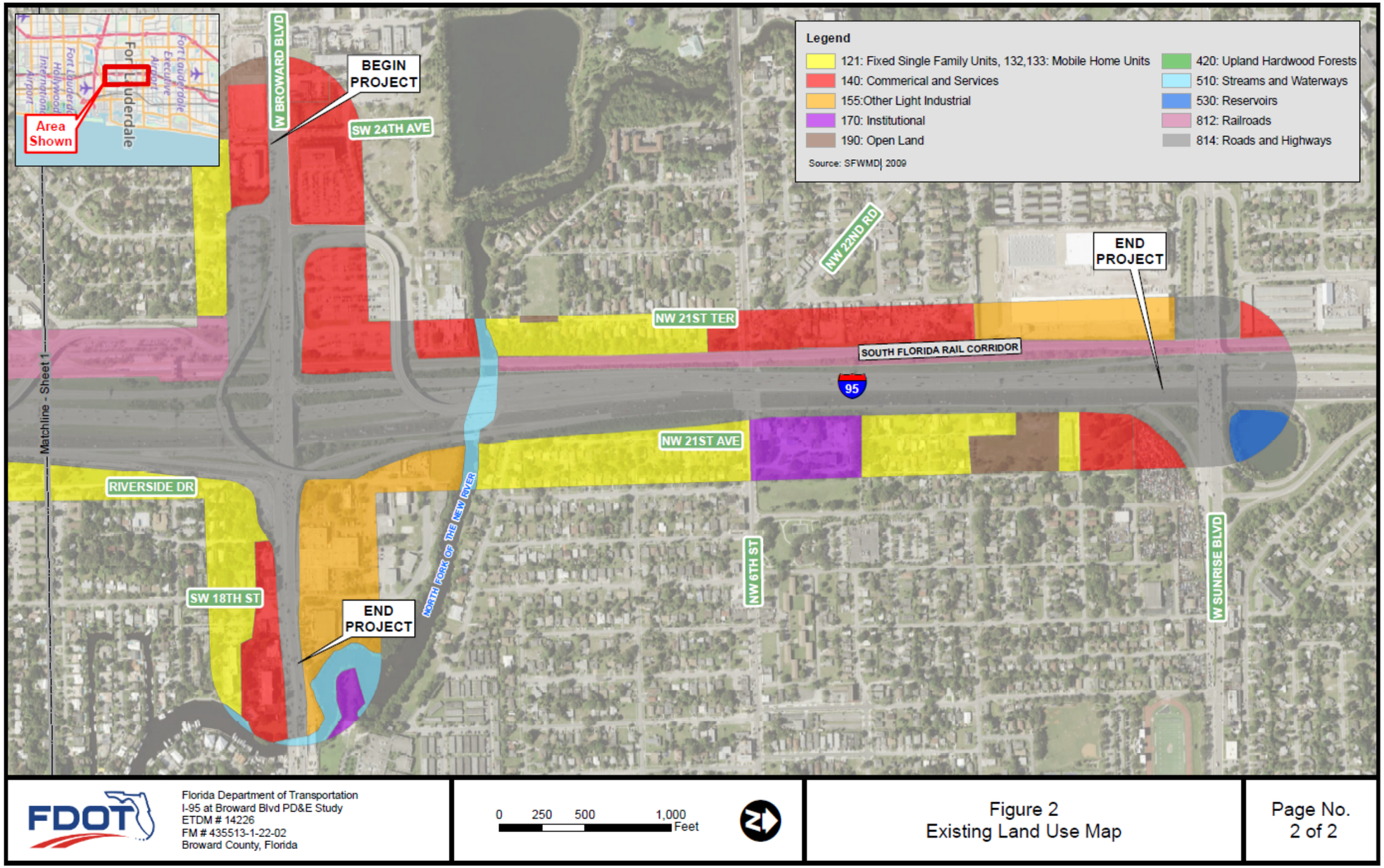


Figure 6-14 | Future Land Use

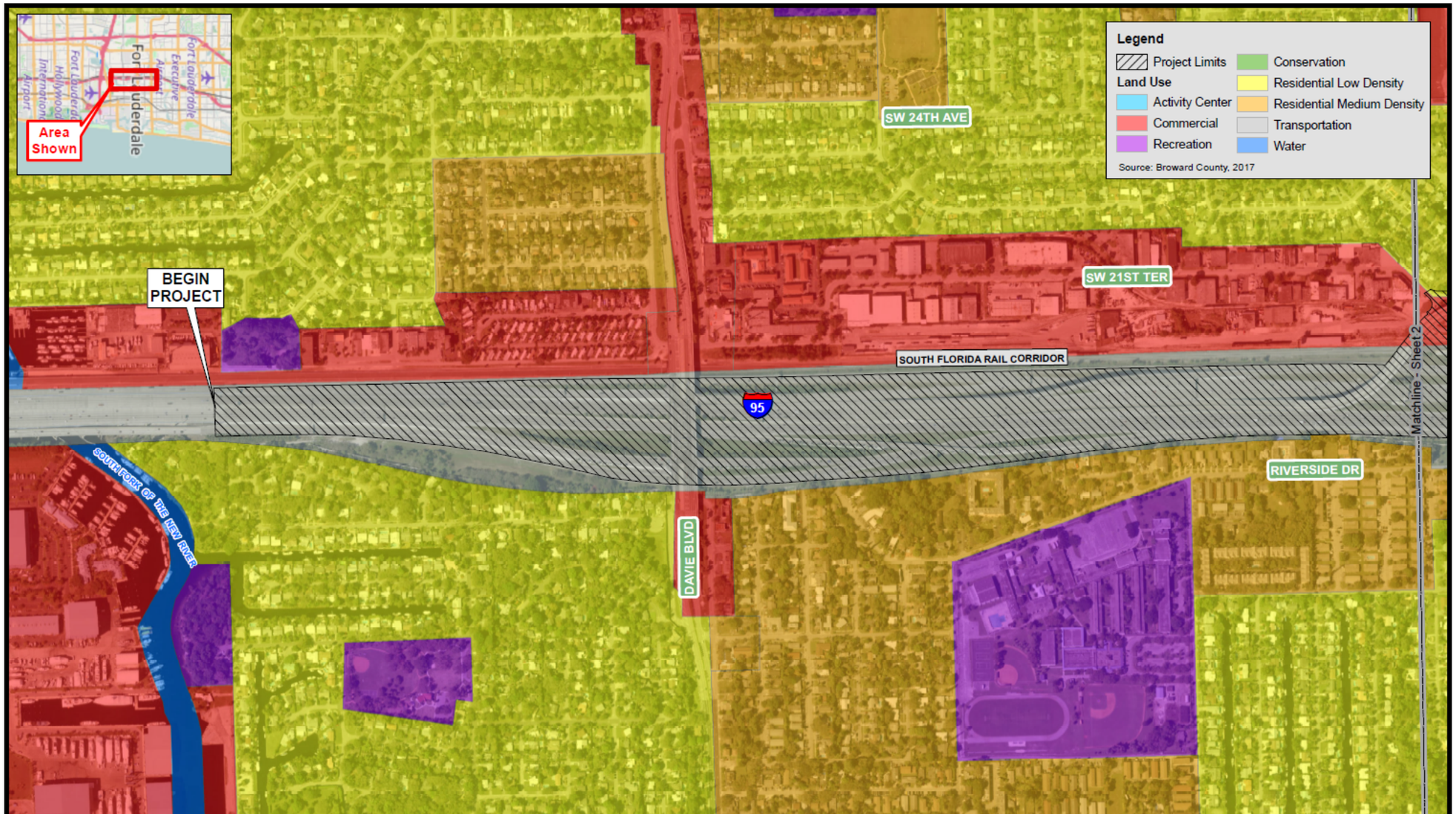
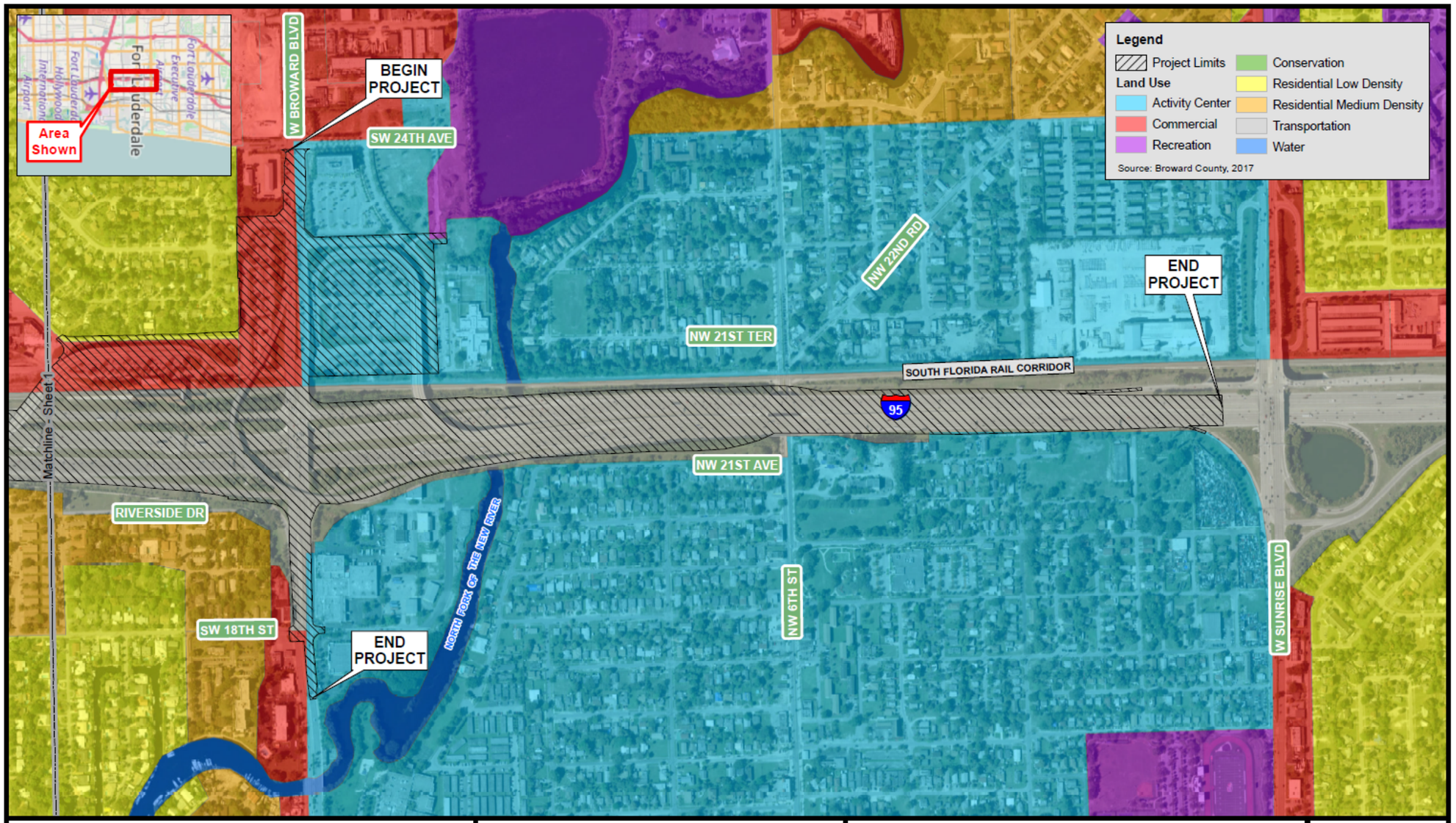


Figure 6-15 | Future Land Use



Florida Department of Transportation
I-95 at Broward Blvd PD&E Study
ETDM # 14226
FM # 435513-1-22-02
Broward County, Florida

0 250 500 1,000 Feet

Figure 3
Future Land Use Map

Page No.
2 of 2

6.13.3 Cultural Resource Assessment Survey

The PD&E Study has conducted a Cultural Resource Assessment Survey and an Addendum following changes to the eastbound Broward Boulevard to southbound 95 Express configuration. Three historic resources, Seaboard Airline Railroad Station at 200 SW 21st Terrace (8BD1452), Seaboard Air Line (CSX) Railroad (8BD4649), and North Woodlawn Cemetery (8BD4879), were previously determined National Register-eligible by the State Historic Preservation Office (SHPO). All other historic resources located within the current area of potential effect (APE) are considered individually ineligible for inclusion in the National Register. Almost all the newly recorded historic buildings are representative of common postwar constructed architecture that does not possess sufficient significance for individual listing in the National Register.

Within the APE of the addendum, there were 36 historical resources identified; 32 newly recorded historic buildings (8BD6748-8BD6779) and four previously recorded historic resources: Seaboard Airline Railroad Station (8BD1452), Seaboard Air Line (CSX) Railroad (8BD4649), 1800-1803 W Broward Boulevard (8BD6339), and Salvation Army Complex (8BD6347). Two historic resources, Seaboard Airline Railroad Station at 200 SW 21st Terrace (8BD1452) and Seaboard Air Line (CSX) Railroad (8BD4649), were previously determined National Register-eligible by the SHPO.

A Section 106 Evaluation and Determination of Effects Case Study was conducted in February of 2018. The case study looked at potential effects that the improvements may have on the identified National Register-eligible and -listed historic resources were evaluated. The proposed project will have no adverse effect on the Seaboard Air Line (CSX) Railroad (8BD4649) and North Woodlawn Cemetery (8BD4879). An adverse effect to the Seaboard Airline Railroad Station (8BD1452) is unlikely and it is recommended further consultation take place in order to ensure the design of canopy structure will be sensitive to the historic station building.

6.13.4 Community Facilities

A community is a defined geographic boundary that is comprised of residents, businesses, facilities, and institutions. Community facilities provide a focal point for neighborhoods and communities, as well as providing services, goods and recreation to the surrounding areas. The project area has a variety of facilities such as public and private schools, public parks, religious centers, community centers, a convention center, a cemetery, one correctional facility, and a public safety building that houses the Broward County Sherriff. Community Facilities are summarized in **Table 6-18**.

Table 6-18 | Community Facilities

Community Facilities - Schools	
Public	**Private**
Stranahan High School	Strayer University
North Fork Elementary School	
Walker Elementary School	
Community Facilities - Parks	
Rev. Samuel Delevoe Memorial Park	Lincoln Park
Hortt Park	Bill Keith Preserve Park
Flamingo Park	Sweeting Park
North Fork Riverfront Park	Southwest 15th Terrace Park
Community Facilities – Religious Facilities	
Abundant Life Christian Center	Bethel Missionary Baptist Church
Royal Assembly Church	Peaceful Zion Missionary Baptist Church
National Church of God	Gospel Mission – South America
Church of Christ	Rock of Ages Baptist Church
Church of New Life Christian Fellowship	Willie C Frazier Outreach Ministry
Kingdom Hall of Jehovah's Witness	More Abundant Powerhouse
Victory Tabernacle of Faith	Spirit of Jesus
St. James #83 Masonic Hall	

6.13.5 Parks and Recreational Facilities

In accordance with the FDOT Project Development and Environment Study (PD&E) Manual, Part 2, Chapter 7, Section 4(f) Resources, dated January 14, 2019, this project was evaluated for potential Section 4(f) involvement. Section 4(f) resources can be divided into three categories: Historic and archaeological sites; publicly-owned parks; and recreation areas, wildlife refuges, and waterfowl refuges.

The potential Section 4(f) resources that have been identified within a quarter mile of the project area are: For the City of Fort Lauderdale - Sweeting Park, North Fork Riverfront Park, North Fork School Park, Lincoln Park, Hortt Park, Flamingo Park and Little Lincoln Park. For Broward County - Rev. Samuel Delevoe Memorial Park.

As discussed above, with the exception of North Fork Elementary and the Delevoe Park, all of the resources listed are located within the buffer of the project area but because of their distance to the project area, no Section 4(f) use is expected from these resources. Although North Fork Elementary is adjacent to the project area, there will be no Section 4 (f) involvement as it does not have any recreational facilities impacted by the project and there will be no land taken from the property.

The project team coordinated with Broward County Parks and Recreation Department regarding Delevoe Park. As part of the Pond Siting Evaluation process, the Project team evaluated the potential for joint use stormwater within Delevoe Park, which is a Broward County owned and managed park. Because of the proposal in the park, a Section 4(f) Determination of Applicability (DOA) form was prepared and submitted to Office of Environmental Management (OEM) on August 30, 2017, and approved on September 19,

2017. The DOA form also included a recommendation to pursue a Section 4(f) de minimis use for the proposed use of the park property because of the need for a joint use stormwater easement within the park. A Section 4(f) de minimis Notification Letter was submitted from the District to Broward County Parks and Recreation Department. The purpose of this letter was to notify the Official with Jurisdiction (OWJ) over the park, that the FDOT intended to pursue a Section 4(f) de minimis use as proposed drainage into the park (as attached to the Type 2 Categorical Exclusion Report). The public was given an opportunity to review this drainage concept in the park during the Public Workshop held on September 14, 2017. On the same day, in response to the de minimis notification letter, Broward County submitted a formal letter of objection to the de minimis use (see Broward County objection letter in the Statewide Environmental Project Tracker (SWEPT) project file). At the Public Hearing, the project team presented off-site areas for stormwater management needs and selected the preferred location on the southwest corner of SW 18th Avenue and Broward Boulevard. The FDOT decided to not pursue the pond within the Delevoe park property, therefore, there will be no use of Delevoe within the meaning of Section 4(f) or otherwise.

6.13.6 Wetlands

The Preferred Alternative was evaluated for potential impacts to wetlands and other surface waters. One wetland exists as a fringe mangrove on the banks of the tidal North Fork of the New River. Seven surface waters exist within the project area, including the North Fork of the New River and six permitted stormwater management areas containing hydrophytic vegetation. The Preferred Alternative encroaches upon the fringe mangrove wetland (W-1) and North Fork of the New River (SW-4), however, they are already planned to be fully impacted and mitigated by the I-95 Express Phase 3A-1 project (FPID No. 433108-5-52-01), authorized under SFWMD Environmental Resource Permit No.06-01465-S and United States Army Corps of Engineers (USACE) Dredge & Fill Permit No. SAJ 2014-01584. No impacts are anticipated to occur at surface waters (SW) 1, 2 or 6.The remaining surface waters (SW-3, SW-5, and SW-7) will be mitigated through offsetting stormwater management areas to be constructed as part of the Preferred Alternative. The total impacted areas created in each of these areas is shown in **Table 6-19**.

Table 6-19 | Direct Impacts Acreages to Surface Waters within a 500-Foot Buffer of the Project Area

ID	Impact Area (Acres)
W-1	**0.004**
SW-3	0.28
SW-4	0.02
SW-5	0.02
SW-7	0.08
Total Impacts	**0.404**

6.13.7 Essential Fish Habitat

The National Marine Fisheries Service (NMFS) has designated areas of this location as an Essential Fish Habitat (EFH), due to the presence of fringe mangroves. While the Preferred Alternative will result in shading and pile driving impacts to the North Fork of the New River, any impacts to critical habitats and EFH have already been mitigated by the I-95 Express Phase 3A-1 project.

NMFS indicated that re-initiation of EFH consultation will not be required based on the previous consultation for the I-95 Express Phase 3A project and that Endangered Species Act (ESA) consultation for the Smalltooth sawfish will not require re-initiation if the means and methods for the proposed widening are the same as those used by the I-95 Phase 3A project. The proposed I-95 Broward Boulevard Interchange project is anticipated to use the same construction means and methods as described in the I-95 Phase 3A project. Therefore, the bridge widening associated with this project does not meet the criteria to trigger re-initiation of consultation with the NMFS. The means and methods to be used include following the NMFS Sea Turtle and Smalltooth Sawfish Construction Conditions, use of floating turbidity barriers, and use of the "ramp-up method" and can be found in the February 4, 2015 NMFS letter in Appendix D of the Environmental Consideration Document in Appendix G of the Natural Resources Evaluation (NRE).

6.13.8 Wildlife and Habitat Survey

Based on the NRE that was conducted, eleven federally listed animals and two plant species were determined to potentially occur within, or within the vicinity of, the project area based on United States Fish and Wildlife Service (USFWS) sources. However, little suitable habitat remains available for use by listed species in this developed project area. Cursory wildlife surveys were conducted in April 2017 and December 2017.

Based on the limited available habitat and the proposed improvements, it was determined that the project will have "no effect" on the following federally listed species: Everglades Snail Kite (Rostrhamus sociabilis plumbeus); American Alligator (Alligator mississippiensis); American Crocodile (Crocodylus acutus); Hawksbill (Eretmochelys imbricata), Leatherback (Dermochelys coriacea), Green (Chelonia mydas), and Loggerhead Sea Turtles (Caretta caretta); Beach Jacquemontia (Jacquemontia reclinata); and Tiny Polygala (Polygala smallii). It was determined that the project "may effect, not likely to adversely affect" the following species: Wood Stork (Mycteria americana); West Indian Manatee; Smalltooth Sawfish; and the Eastern Indigo Snake (Drymarchon corais couperi). USFWS concurred with these effects determinations on May 2, 2018 (see concurrence letter attached to Type 2 Categorical Exclusion).

To minimize potential impacts to the Smalltooth Sawfish, the NMFS Sea Turtle and Smalltooth Sawfish Construction Condition (See Appendix E in NRE) will be followed with respect to any in-water construction activities. To minimize impacts to the Wood Stork, any impacts to suitable foraging habitat occurring within stormwater management areas are anticipated to be mitigated through offsetting stormwater management areas. To minimize any adverse effects to the West Indian Manatee during construction, the FDOT will adhere to the Standard Manatee Conditions for In-Water Work (See Appendix D in NRE).

To minimize adverse effects to the Eastern Indigo Snake during construction, the FDOT will adhere to the Standard Protection Measures for the Eastern Indigo Snake (See Appendix B in NRE).

The Florida Fish and Wildlife Conservation Commission (FWC) maintains the list of animals designated as federally endangered, federally threatened, state threatened, or species of special concern. While the USFWS has primary responsibility for Florida species that are federally endangered or threatened, the FWC works in partnership to help conserve these species. Some listed and non-listed species are also considered managed species because of the well-developed programs that address their conservation, management, or recovery. Recently, FWC also developed a comprehensive Imperiled Species Management Plan (FWC, 2016) for the state's 57 state-listed species. The likelihood of occurences of these species are outlined in **Table 6-20**.

Table 6-20 | Likelihood of Occurrences of Federally and State Listed Species

Scientific Name	Common Name	Status	Likelihood of Occurrence	Effect Determination
Fish				
Pristis pectinata	Smalltooth Sawfish	FE	Low	NLAA
Avian				
Mycteria americana	Wood Stork	FT	Moderate	NLAA
Rostrhamus sociabilis plumbeus	Everglades Snail Kite	FE	Low	NE
Sternula antillarum	Least Tern	ST	Low	NE
Egretta caerulea	Little Blue Heron	ST	Low	NE
Egretta tricolor	Tricolored Heron	ST	Low	NE
Egretta rufescens	Reddish Egret	ST	Low	NE
Platalea ajaja	Roseate Spoonbill	ST	Low	NE
Rynchops niger	Black Skimmer	ST	Low	NE
Haematopuspalliatus	American Oystercatcher	ST	Low	NE
Athene cunicularia floridana	Burrowing Owl	ST	Low	NE
Mammals				
Trichechus manatus	West Indian Manatee	FT	Moderate	NLAA
Reptiles				
Drymarchon corais couperi	Eastern Indigo Snake	FT	Low	NLAA
Alligator mississippiensis	American Alligator	FT (SA)	Low	NE
Crocodylus acutus	American Crocodile	FT	Low	NE
Chelonia mydas	Green Sea Turtle	FE	Low	NE
Eretmochelys imbricata	Hawksbill Sea Turtle	FE	Low	NE
Dermochelys coriacea	Leatherback Sea Turtle	FE	Low	NE
Caretta caretta	Loggerhead Sea Turtle	FT	Low	NE
Gopherus polyphemus	Gopher Tortoise	ST	Low	NE
Plants				
Jacquemontia reclinata	Beach Jacquemontia	FE	Low	NE
Polygala smallii	Tiny Polygala	FE	Low	NE

Note: FT= Federally-designated Threatened; FE= Federally-designated Endangered; ST = State-designated Threatened; SE= State-designated Endangered; SA= Similarity of Appearance

Source: Florida Fish and Wildlife Conservation Commission. Florida's Endangered and Threatened Species. Official Lists, January 2017; U.S. Fish and Wildlife Service, County Listed Species; and Florida's Imperiled Species Management Plan 2016.

6.13.9 Floodplains/Floodways

The Location Hydraulic Report (LHR) identifies that the project falls within the FEMA defined Zones AE and AH. Zone AE is a special flood hazard area subject to inundation by the 100-year flood, with determined base flood elevations. Zone AH is a special flood hazard area, also subject to inundation by the 100-year flood, that experiences flood depths of 1 to 3 feet (which are usually areas of ponding), with determined base flood elevations. The project will result only in minimal encroachments to floodplains; 1.90 acres of Zone AE and 1.92 acres of Zone AH. These base floodplain encroachments will be constrained to along the east and west sides of I-95, and within the median of the I-95 mainline, as well as along Broward Boulevard. Encroachments resulting from the construction of the project will be fully compensated within the proposed stormwater management facilities to ensure there will be no increase or significant change to flood elevations and/or limits. Therefore, this encroachment is not significant. For additional clarification please refer to the FEMA FIRM maps included with the LHR under Attachment B.

6.13.10Noise

As detailed in the Noise Study Report, the design year traffic noise levels (2040) for the Preferred Alternative will approach or exceed the Noise Abatement Criteria (NAC) at 41 residences and at one special land use within the project limits. Consequently, the feasibility and reasonableness of noise barriers were considered for those noise sensitive sites predicted to be impacted.
Four separate Common Noise Environments (CNEs) were used to assess noise barriers for the noise sensitive sites that approach or exceed the NAC:

- E4S - Represents the 19 impacted residences in the Riverbend Community;
- E4N - Represents the 16 residences in the Liberty Park Community;
- E5 - Represents the Woodlawn Cemetery; and
- W4 - Represents the six residences in River Garden/Sweeting Estates and Washington Park.

Noise barriers at three of the CNEs (E4S, E4N, and W4) were determined to be feasible and cost reasonable and/or represent replacement noise barriers and are recommended for further consideration during the design phase and for public input. Noise barriers recommended for CNE-E4S and -W4 represent replacement noise barriers for the existing and planned shoulder mounted noise barriers that are required to be replaced to construct the improvements associated with the Preferred Alternative. The recommended noise barriers benefit 27 of the 41 residences with reduction from the existing noise barrier impacted by the Preferred Alternative. The elevated roadways in the vicinity of these communities and the 8-foot- tall height limitation on bridge and Mechanically Stabilized Earth walls limit the ability to provide benefits to all of the impacted residences in these communities. The estimated cost of the recommended noise barriers is $1,935,600.

Noise barriers were not found to be cost reasonable at the Woodlawn Cemetery (CNE-E5). The usage of the cemetery was less than required to be cost reasonable; therefore, a noise barrier is not recommended for further consideration or construction at this location. Based on the noise analyses

performed to date, there appears to be no apparent solutions available to mitigate the noise impacts at this cemetery or the 14 impacted residences in the vicinity of the existing and proposed noise barriers. The traffic noise impacts to these noise sensitive sites are an unavoidable consequence of the project.

FDOT will adhere to the construction of feasible noise abatement measures at the noise impacted locations identified above as further defined in the Noise Study Report.

6.13.11Contamination

Available records reported many sources associated with hazardous waste management, petroleum storage systems/spills, cleaning or dry cleaning activities, and environmental contamination within a 500 foot radius of the project corridor. An evaluation of site characteristics for these sources and associated environmental information (e.g. undocumented or documented soil, groundwater, and/or hazardous material impacts) identified 78 sources/facilities (detailed listing available in the Contamination Screening Evaluation Report), with a risk rating distribution as follows: 13 - High, 17 - Medium, 27 - Low, and 21 - No. Based on these risk ratings, construction activities may encounter soil or groundwater contamination which can potentially impact worker health, the environment, and construction schedule and costs if these sites are not addressed in the design.

A Level II Assessment is recommended for 13 sources/facilities (i.e. 8-High, 5-Medium) that have the potential to adversely impact the project due to their proximity to subsurface construction activities. The remaining 17 sources/facilities with High or Medium risk ratings should be re-evaluated for impacts to the project when the construction design and methods are finalized. If the re-evaluation indicates any of the 17 sources/facilities has the potential to adversely impact the project, a Level II Assessment is recommended. The Level II Assessment should include the advancement of environmental soil borings and discrete groundwater sampling at specific locations within the project corridor that require subsurface construction (i.e. soil excavation and/or dewatering activities) near sources identified as having potential contamination. The Level II Assessment should include the collection and analysis of soil and groundwater samples for the appropriate analytical group parameters.

6.13.12Right–of-Way

The existing Limited Access right-of-way along I-95 within the study limits varies 121’ to 440’ east of the I-95 centerline, and 136’ to 345’ west of the I-95 centerline.

The existing right-of way along Broward Boulevard from SW 24th Avenue to NW/SW 22nd Avenue, and from east of I-95 to east of NW/SW 18th Avenue varies from 112’ to 189’. Limited Access right-of-way from east of SW 22nd Avenue to east of I-95 which varies from 183’ to 288’.

All of the proposed improvements are designed to utilize existing FDOT right-of-way, except for properties at the SW/NW 18th Avenue and Broward Boulevard Intersection. These impacts include a partial take at the Salvation Army in the Northwest corner, a gas station partial take in the southeast corner, and three

business relocations in the southwest corner of the intersection. There are no residential property relocations required for the Preferred Alternative. Detailed information is available in the Conceptual Stage Relocation Plan.

6.13.13Right-of-Way Encroachment

There is an encroachment onto FDOT right-of-way located on the east border I-95 between NW 7th Place and NW 8th Street in the City of Ft. Lauderdale. The property owner located adjacent to the FDOT parcel (Rodney's Relocation Services; 2001 NW 7th Place Ft. Lauderdale, FL 33311) has a fence that is situated within FDOT right-of-way. The FDOT Parcel with the encroachment is listed as Folio Number 50420432010 per the Broward County Property Appraiser's office.

6.14 Transit Improvements

Broward Boulevard's elevation over I-95 creates vertical access challenges for transit users, bicyclists, and pedestrians looking to connect with the transit services available in the Park-and-Ride and Transit Station area northwest and southwest of the interchange. The three proposed alternatives for the bridge replacement on the Broward Interchange all include an envelope – approximately 47-49 feet wide – for a future premium median transit stop. The purpose of this median transit station envelope (future project development) is to improve intermodal connectivity between the transit options on Broward Boulevard and the Park-and-Ride and Tri-Rail/Amtrak stations below. The median transit station envelope would also be able to accommodate fixed rail; in the event that a fixed rail system were to be built along Broward Boulevard. Elevators and other access features would allow passengers to transfer vertically between Broward Boulevard and the proposed pedestrian staging area on the lower level. The 95 Express Bus would circulate around the lower level pedestrian staging area and Park-and-Ride lots 1, 2, and 3; northwest of the interchange. A sidewalk would provide direct access between the pedestrian staging area and Park-and-Ride lots 1, 2, and 3. A covered walkway would provide direct access between the pedestrian staging area and Park-and-Ride lot 4, the Tri-Rail/Amtrak station southwest of the interchange, and all bus stops located in front of the rail station.

6.15 Value Engineering Review

A Value Engineering review was conducted during the week of January 22, 2018 through January 26, 2018. For more information on the outcome of this review, refer to **Appendix D** – Value Engineering Report.

7.0 List of Technical Reports Completed for the Project

- Air Quality Technical Memorandum
- Conceptual Stage Relocation Plan
- Contamination Screening Evaluation Report
- Cultural Resource Assessment Survey and Addendum
- Geotechnical Report
- Location Hydraulics Report
- Natural Resources Evaluation
- Noise Study Report
- Offsite Pond Siting Report
- Preliminary Drainage Analysis Report
- Sociocultural Effects Evaluation Report
- Systems Interchange Modification Report

Appendix A

Concept Plans

CONCEPT PLANS COMPONENTS

STATE OF FLORIDA

DEPARTMENT OF TRANSPORTATION

CONCEPT PLANS

FINANCIAL PROJECT ID 435513-1-22-02

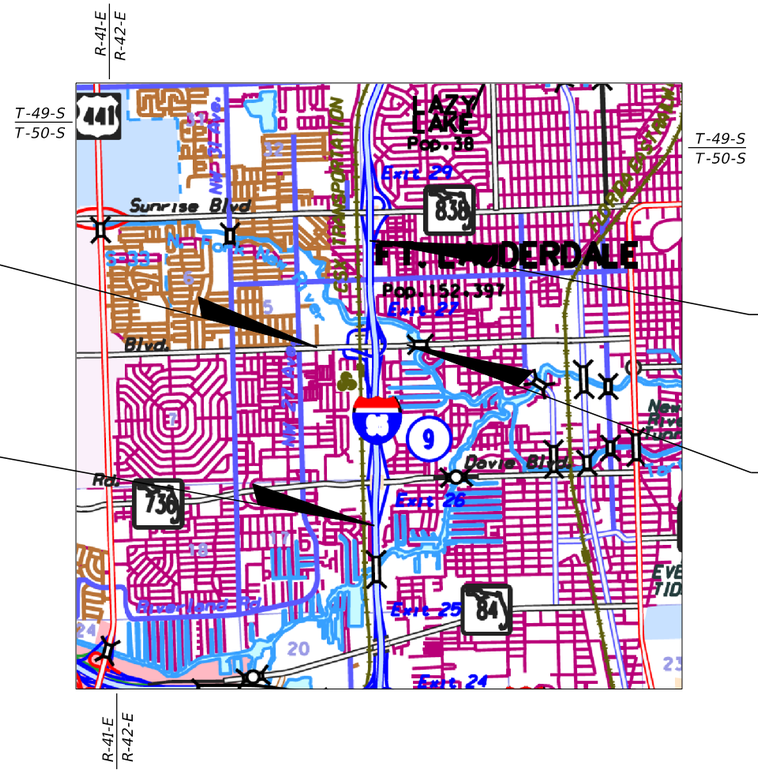
BROWARD COUNTY (86100)

STATE ROAD NO. 842/BROWARD BLVD. (86006000)

STATE ROAD NO. 9/I-95 (86070000)

INDEX OF CONCEPT PLANS

SHEET NO.	SHEET DESCRIPTION
1	KEY SHEET
2 TO 13	CONCEPT PLANS
14 TO 18	SIGNING MASTER PLAN
19 TO 20	MAINTENANCE OF TRAFFIC
TS-1 TO TS-1	BROWARD BLVD BRIDGES TYPICAL SECTIONS
TS-3	INGRESS/EGRESS RAMPS TYPICAL SECTION
B-1 TO B-2	BROWARD BLVD BRIDGES PLAN AND ELEVATION SHEETS
B1-1 TO B4-2	INGRESS/EGRESS RAMPS PLAN AND ELEVATION SHEETS

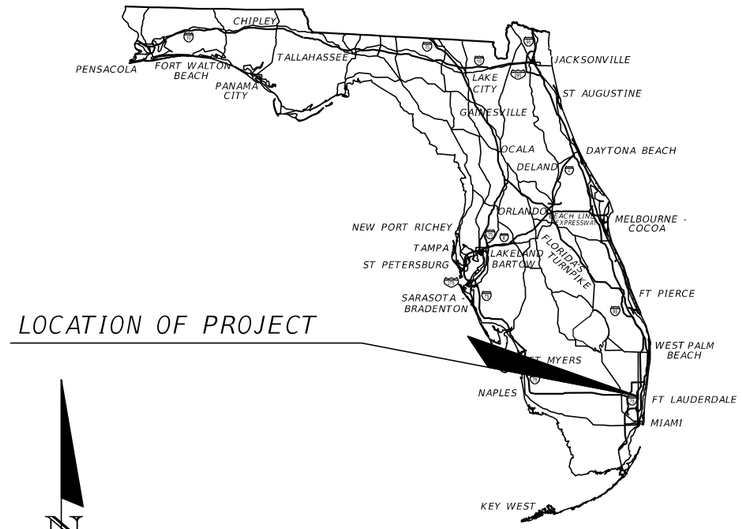


BEGIN PROJECT

BROWARD BLVD FROM
WEST OF 24TH AVE.

BEGIN PROJECT

I-95 FROM SOUTH
OF DAVIE BLVD.



LOCATION OF PROJECT

N

END PROJECT

I-95 FROM TO SOUTH
OF SUNRISE BLVD.

END PROJECT

BROWARD BLVD TO EAST
OF NW/SW 18TH AVE.

ROADWAY PLANS
ENGINEER OF RECORD:

GUILLERMO J. SUERO, P.E.
HDR ENGINEERING, INC.
3250 W. COMMERCIAL BLVD, SUITE 100
FT. LAUDERDALE, FLORIDA 33309

FDOT PROJECT MANAGER:

ANSON SONNETT, P.E.

GOVERNING DESIGN STANDARDS:

Florida Department of Transportation, FY2018-19 Standard Plans for Road and Bridge Construction and applicable Interim Revisions (IRs).

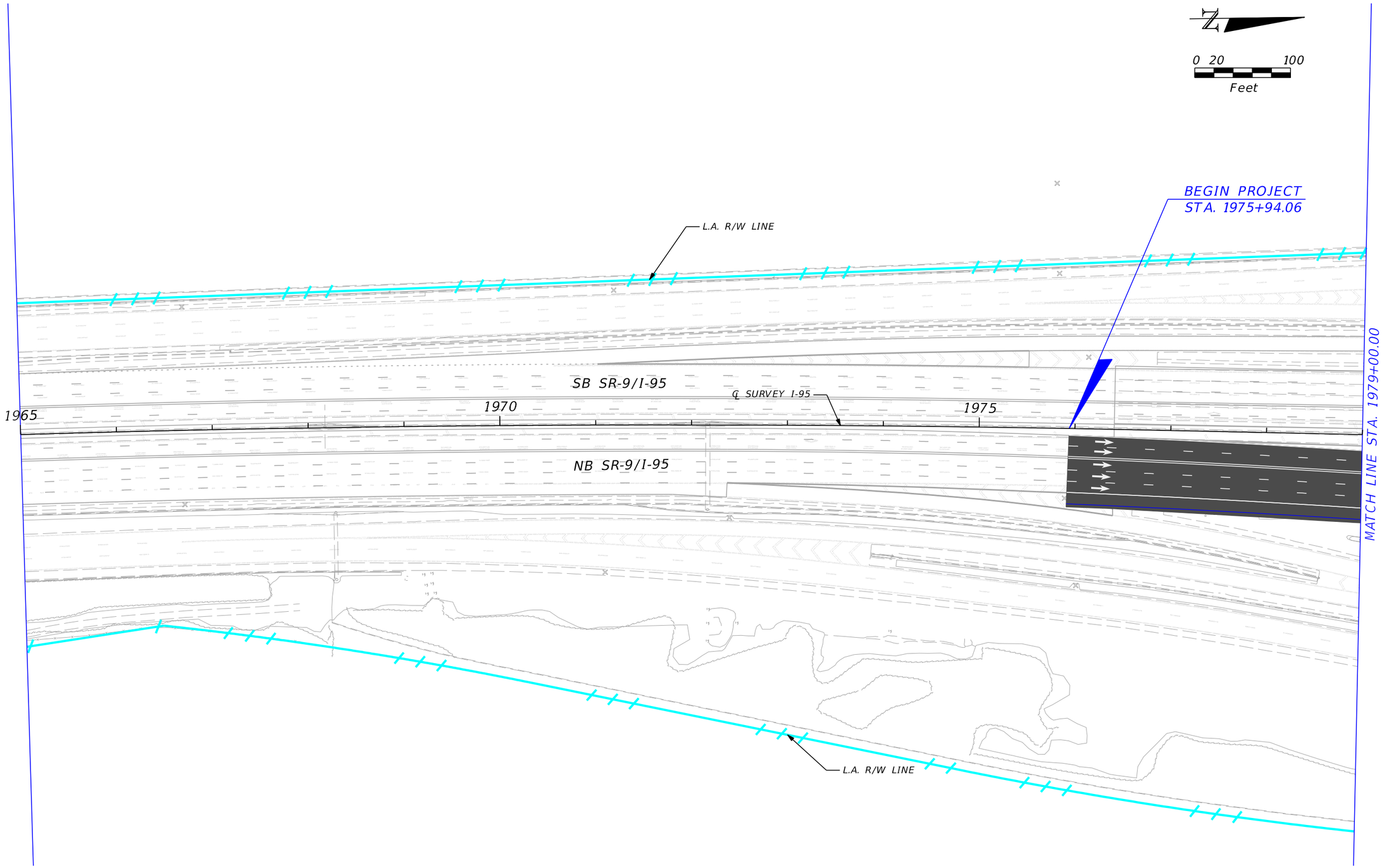
Standard Plans for Road Construction and associated IRs are available at the following website: http://fdot.gov/design/standardplans

GOVERNING STANDARD SPECIFICATIONS:

Florida Department of Transportation, July 2018 Standard Specifications for Road and Bridge Construction at the following website: http://www.fdot.gov/programmanagement/Implemented/SpecBooks

CONSTRUCTION CONTRACT NO.	FISCAL YEAR	SHEET NO.
		1

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GUILLERMO J. SUERO, P.E.
P.E. LICENSE NUMBER 49224
HDR Engineering, Inc.
3250 W. Commercial Blvd, Suite 100
Ft. Lauderdale, FL 33309
CERTIFICATE OF AUTHORIZATION 4213

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
842	BROWARD	435513-1-22-02

CONCEPT PLANS

SHEET NO. 2

MHENRIQU 12/17/2018 3:11:24 PM PW:\

N

0 20 100

Feet

R/W LINE

L.A. R/W LINE

MATCH LINE STA. 1979+00.00

POT STA. 9981+00.00

℄ SURVEY I-95

1980

1985

9985

SB SR-9/I-95

NB SR-9/I-95

7985

1990

9990

POC STA. 9991+91.99

7990

MATCH LINE STA. 1993+00.00

SR-736/DAVIE BLVD

L.A. R/W LINE

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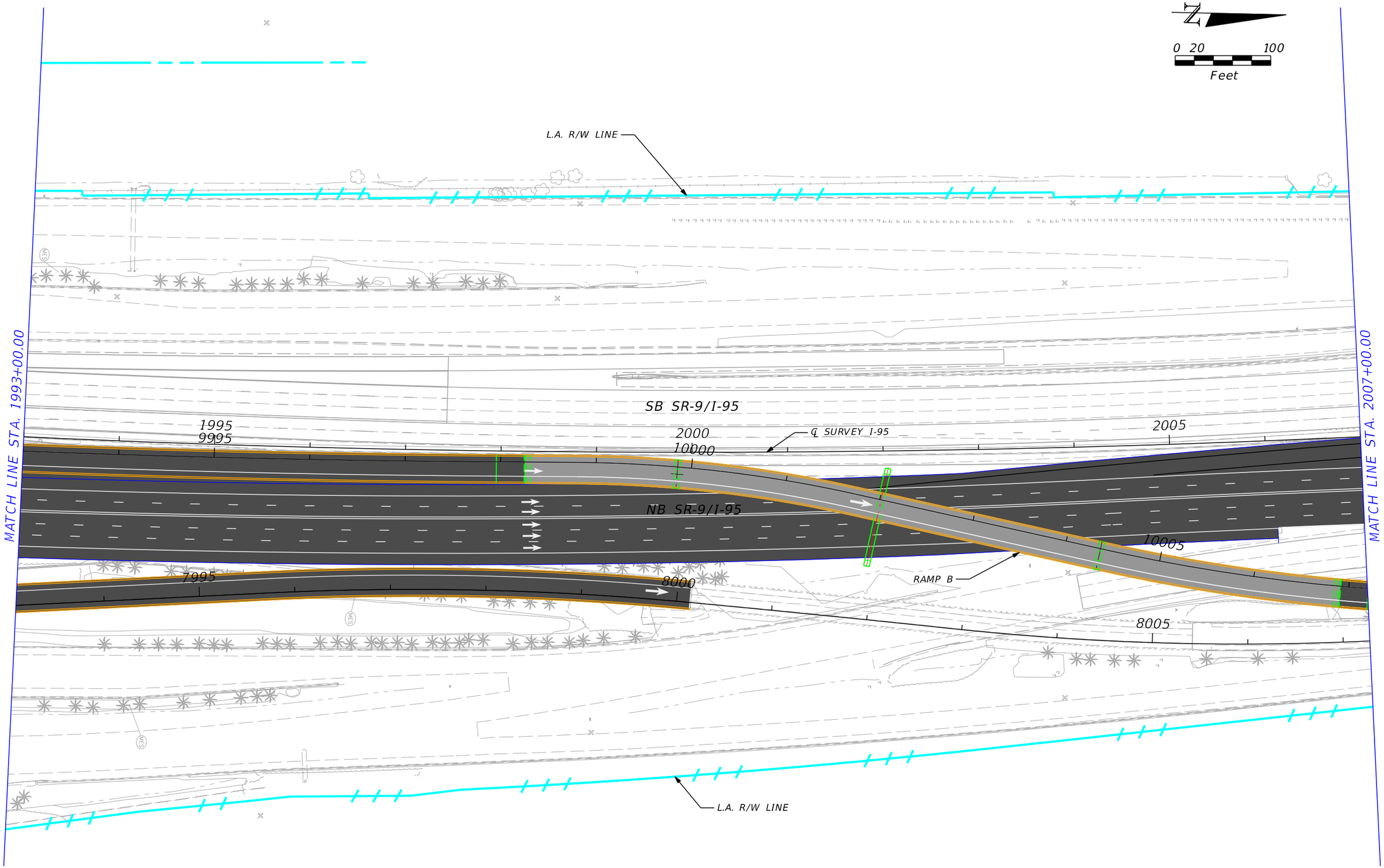
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
842	BROWARD	435513-1-22-02

CONCEPT PLANS

SHEET NO. 3

MHENRIQU 12/17/2018 3:15:07 PM PW:\



REVISIONS			
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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

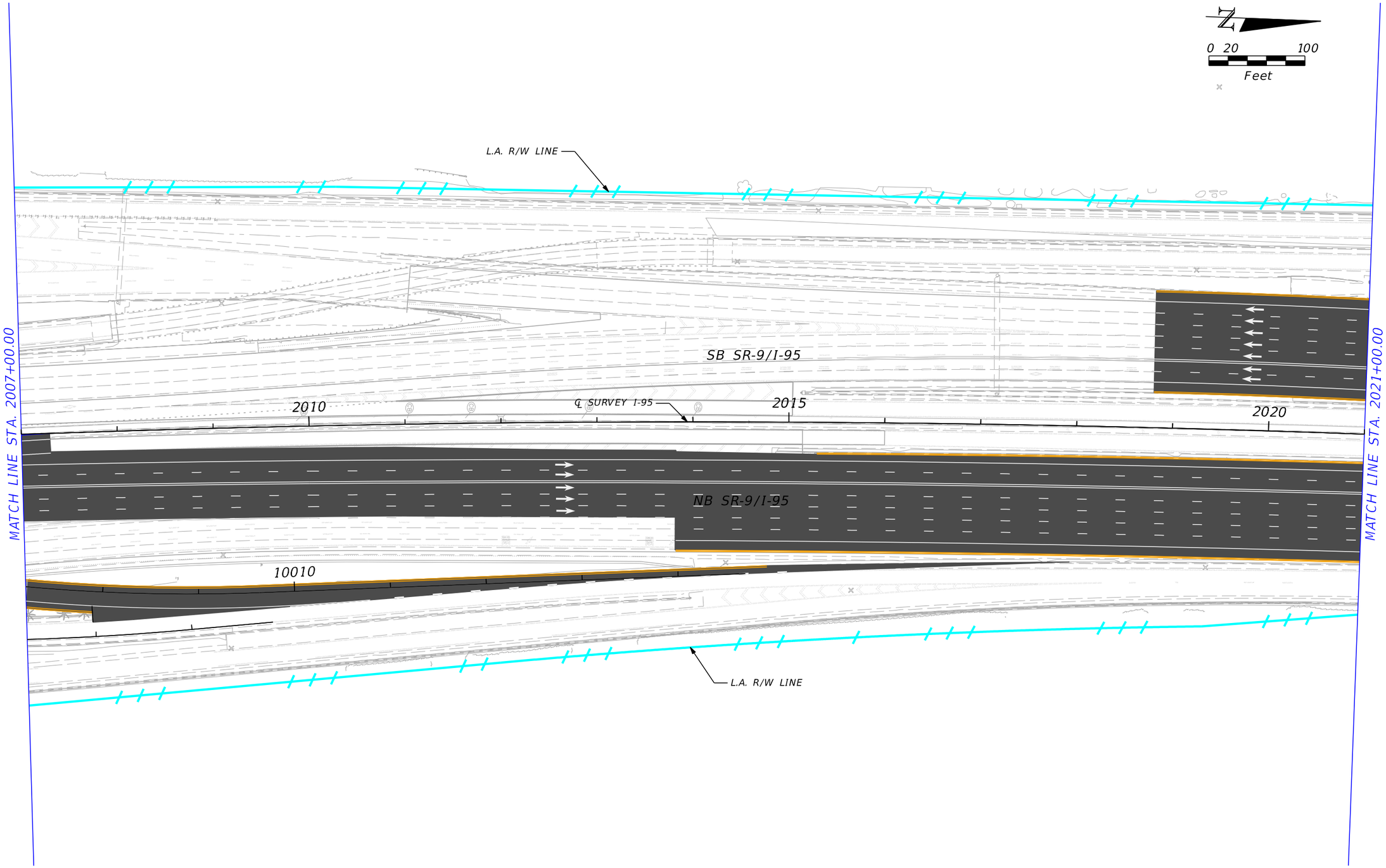
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
842	BROWARD	435513-1-22-02

CONCEPT PLANS

SHEET NO. 4

MHENRIQU 12/20/2018 4:31:17 PM PW:\

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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
842	BROWARD	435513-1-22-02

CONCEPT PLANS

SHEET NO. 5

MHENRIQU 12/17/2018 3:44:56 PM PW:\

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0 20 100
Feet

PREFERRED TREATMENT

REPLACE EXISTING PIER 2-L WITH INTEGRAL STRADDLE PIER.

MATCH LINE STA. 2021+00.00

MATCH LINE STA. 2035+00.00

L.A. R/W LINE

℄ PIER 4-L
STA. 35+61.11

SPAN 4-L

SPAN 4-R

℄ PIER 4-R
STA. 35+89.61

BRIDGE NO. 860600

SPAN 3-L

SPAN 3-R

℄ PIER 3-R
STA. 34+12.11

℄ PIER 3-L
STA. 33+72.11

BRIDGE NO. 860638

SB SR-971-95

2025

2030

2035

SPAN 2-L

SPAN 2-R

SPAN 1-L

SPAN 1-R

℄ PIER 2-R
STA. 31+57.11

℄ SURVEY I-95

BEGIN APP. SLAB
STA. 29+02.11

BEGIN BRIDGE
END BENT 1
STA. 29+22.11

℄ PIER 2-L
STA. 30+97.11

NB SR-9/I-95

L.A. R/W LINE

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HDR Engineering, Inc.
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CERTIFICATE OF AUTHORIZATION 4213

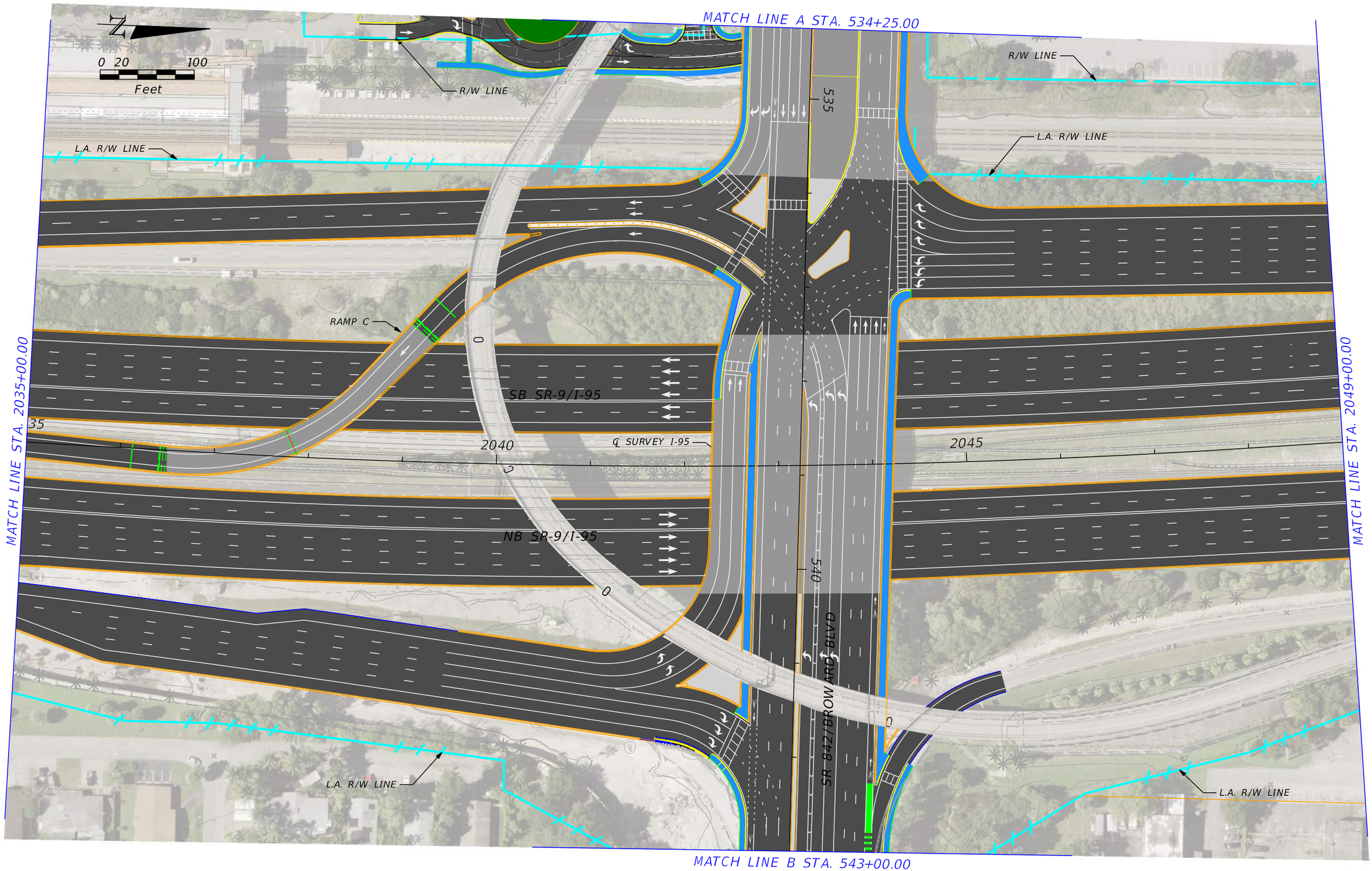
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
842	BROWARD	435513-1-22-02

CONCEPT PLANS

SHEET NO. 6

MHENRIQU 9/6/2019 3:40:47 PM PW:\



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

GUILLERMO J. SUERO, P.E.
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3250 W. Commercial Blvd, Suite 100
Ft. Lauderdale, FL 33309
CERTIFICATE OF AUTHORIZATION 4213

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

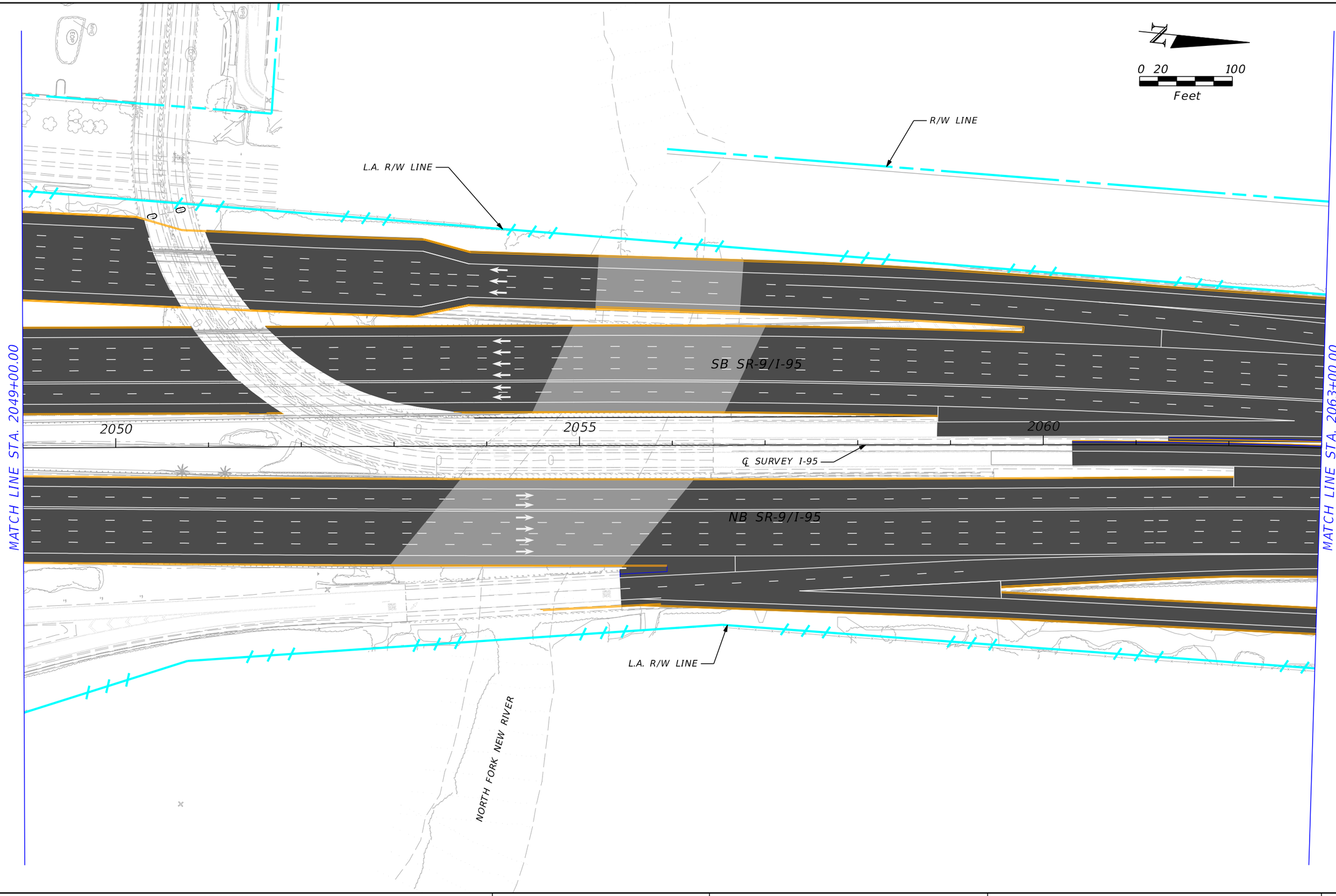
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
842	BROWARD	435513-1-22-02

CONCEPT PLANS

SHEET NO. 7

MHENRIQU 12/18/2018 12:09:15 AM PW:\

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3250 W. Commercial Blvd, Suite 100
Ft. Lauderdale, FL 33309
CERTIFICATE OF AUTHORIZATION 4213

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

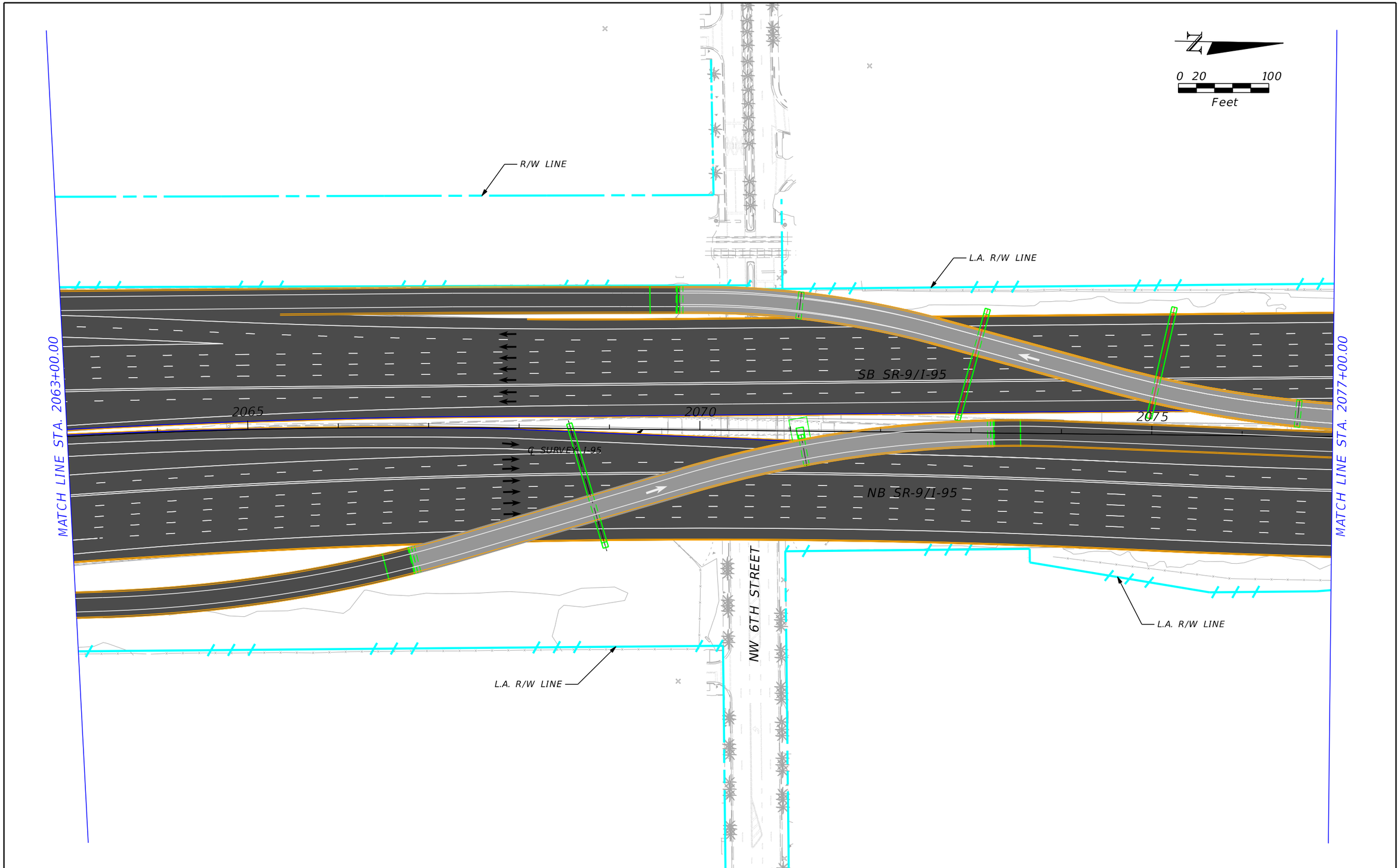
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
842	BROWARD	435513-1-22-02

CONCEPT PLANS

SHEET NO. 8

MHENRIQU 12/17/2018 10:23:12 PM PW:\

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STATE OF FLORIDA
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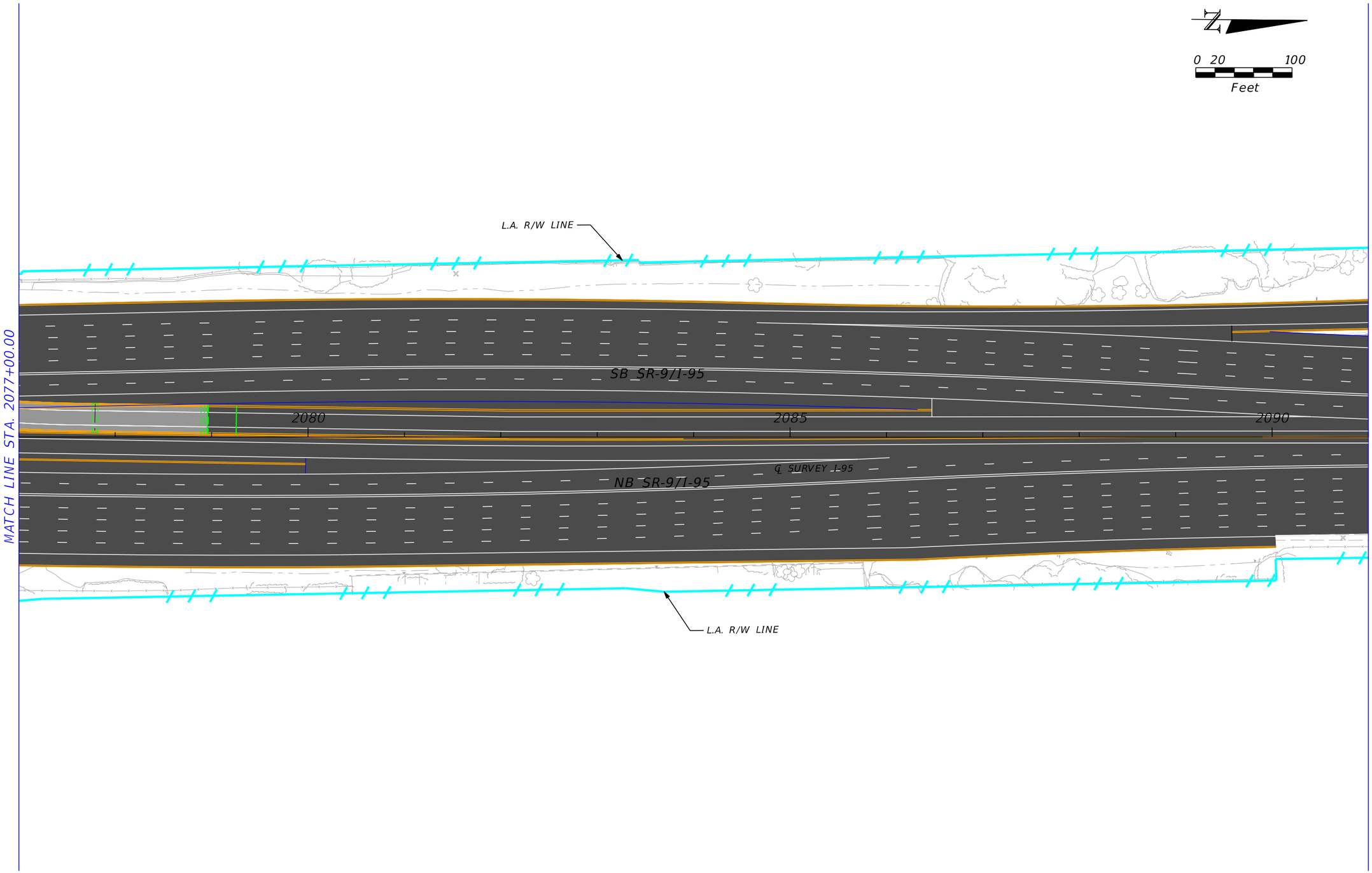
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
842	BROWARD	435513-1-22-02

CONCEPT PLANS

SHEET NO. 9

MHENRIQU 12/17/2018 11:37:18 PM PW:\

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STATE OF FLORIDA
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ROAD NO.	COUNTY	FINANCIAL PROJECT ID
842	BROWARD	435513-1-22-02

CONCEPT PLANS

SHEET NO. 10

MHENRIQU 12/17/2018 11:44:26 PM PW:\

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N

0 20 100

Feet

L.A. R/W LINE

L.A. R/W LINE

MATCH LINE STA. 2091+00.00

2095

SB SR-9/I-95

2100

21

℄ SURVEY I-95

SR 838/SUNRISE BLVD

END PROJECT
STA. 2094+83.39

L.A. R/W LINE

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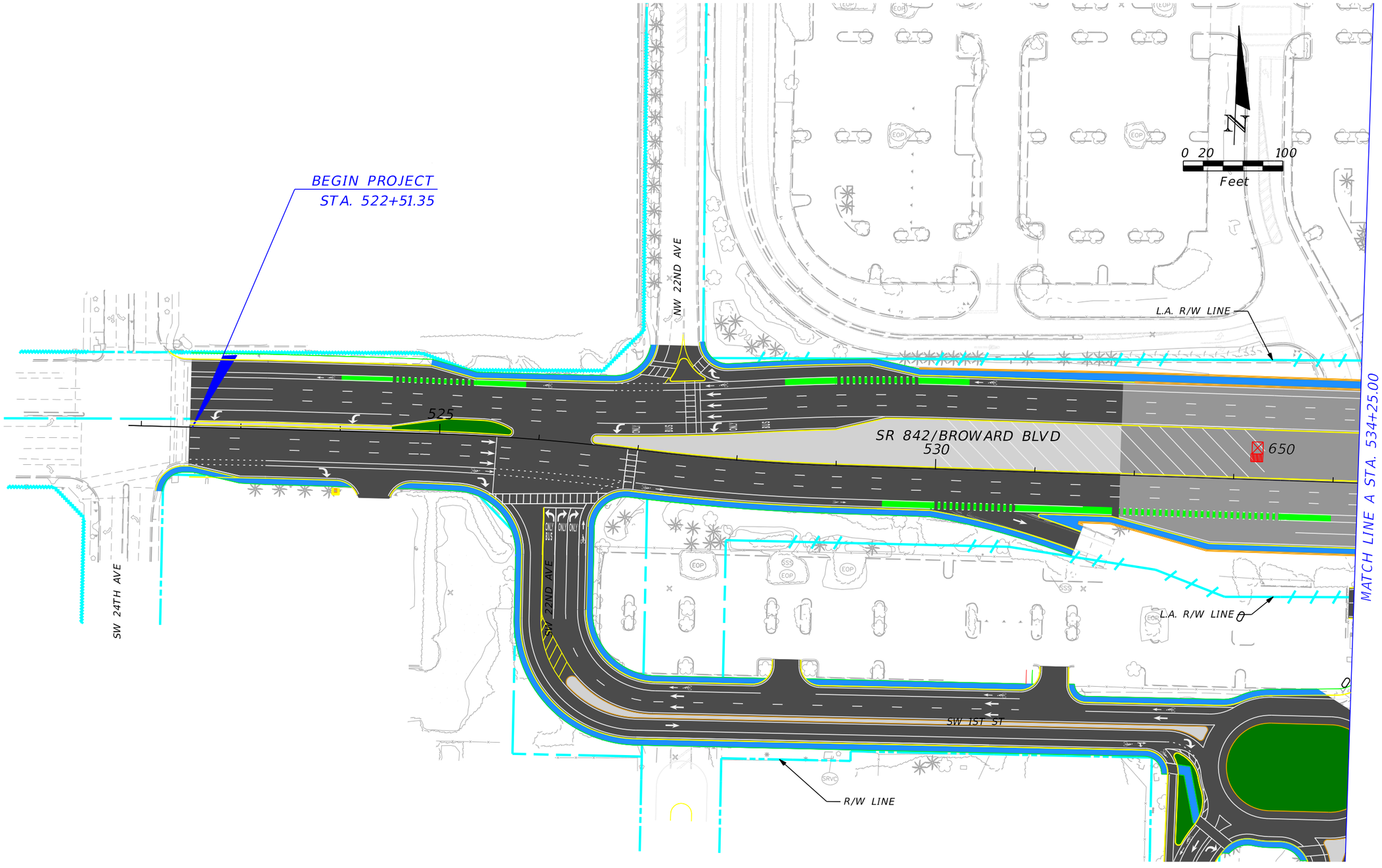
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
842	BROWARD	435513-1-22-02

CONCEPT PLANS

SHEET NO. 11

MHENRIQU 12/17/2018 11:49:56 PM PW:\



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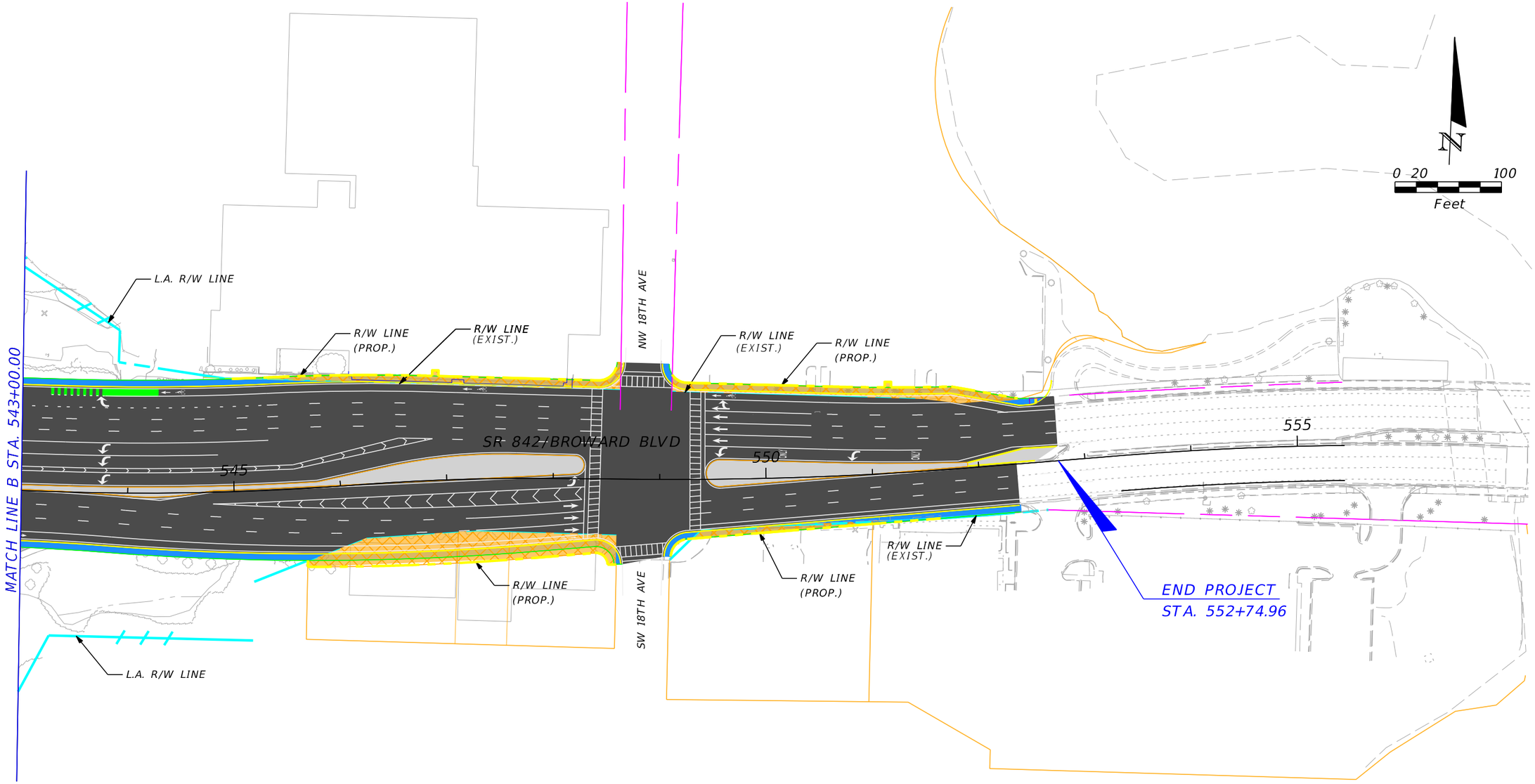
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
842	BROWARD	435513-1-22-02

CONCEPT PLANS

SHEET NO. 12

MHENRIQU 12/21/2018 3:35:22 PM PW:\



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

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HDR Engineering, Inc.
3250 W. Commercial Blvd, Suite 100
Ft. Lauderdale, FL 33309
CERTIFICATE OF AUTHORIZATION 4213

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

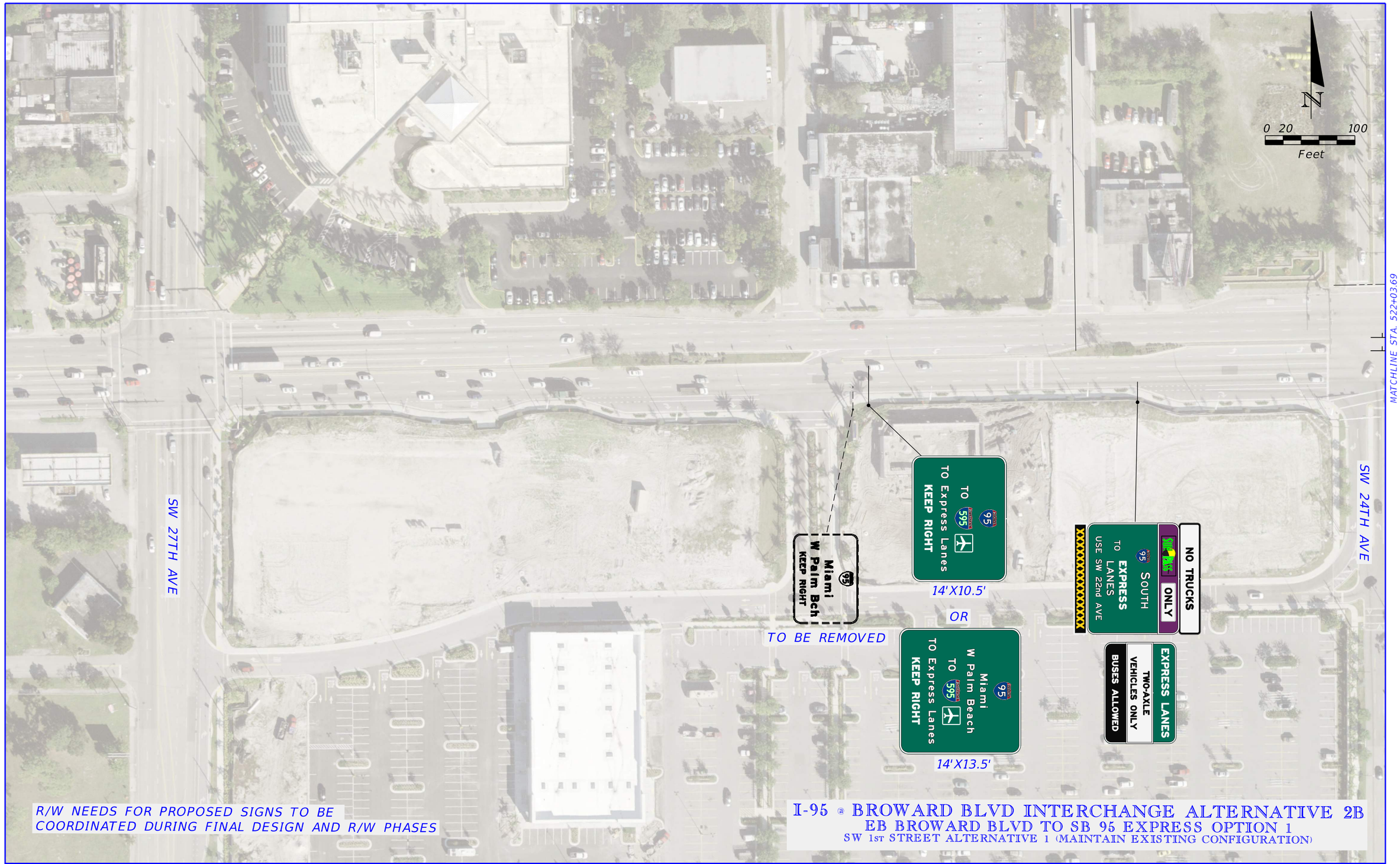
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
842	BROWARD	435513-1-22-02

CONCEPT PLANS

SHEET NO. 13

MHENRIQU 7/9/2019 11:52:17 AM PW:\

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I-95 @ BROWARD BLVD INTERCHANGE ALTERNATIVE 2B
EB BROWARD BLVD TO SB 95 EXPRESS OPTION 1
SW 1ST STREET ALTERNATIVE 1 (MAINTAIN EXISTING CONFIGURATION)

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
842	BROWARD	435513-1-22-02

BROWARD BLVD PD&E
SIGNING MASTER PLAN

SHEET NO. 14

CBEARD 12/7/2018 4:47:45 AM PW:\

N

0 20 100

Feet

NW 22ND AVE

INSET 1

INSTALL INTERNALLY ILLUMINATED RPM's FOR LEFT TURN MOVEMENTS AROUND THE TURN

325

525

330

530

842

BROWARD BLVD

650

335

535

INSET 1

4300

MATCHLINE STA. 522+03.69

MATCHLINE STA. 537+44.54

SW 22ND AVE

TO BE REMOVED

STA. 527+90

TO BE REMOVED

TO BE REMOVED

STA. 525+11

STA. 523+97

STA. 532+80

STA. 522+86
PREFERRED OPTION
SEE GUIDESIGN WORKSHEET FOR ADDITIONAL OPTIONS

TO REMAIN

TO REMAIN

R/W NEEDS FOR PROPOSED SIGNS TO BE COORDINATED DURING FINAL DESIGN AND R/W PHASES

I-95 @ BROWARD BLVD INTERCHANGE ALTERNATIVE 2B
EB BROWARD BLVD TO SB 95 EXPRESS OPTION 1
SW 1ST STREET ALTERNATIVE 1 (MAINTAIN EXISTING CONFIGURATION)

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
842	BROWARD	435513-1-22-02

BROWARD BLVD PD&E
SIGNING MASTER PLAN

SHEET NO. 15

CBEARD 12/7/2018 4:45:14 AM PW:\

MATCHLINE STA. 2049+20.11

R/W NEEDS FOR PROPOSED SIGNS TO BE COORDINATED DURING FINAL DESIGN AND R/W PHASES

NO TRUCKS LEFT LANE

STA. 343+21

NORTH 95 W Palm Beach TO Express Lanes RAMP ONLY

SOUTH 95 Miami TO 595

TO BE REMOVED

SOUTH 95 Miami RAMP ONLY

RAMP METERED WHEN FLASHING

RAMP METERED WHEN FLASHING

EXPRESS LANES SOUTH 95

TO BE REMOVED

NORTH 95 W Palm Bch

STA. 346+86

NORTH 95 W Palm Beach TO Express Lanes RAMP ONLY

SOUTH 95 Miami TO 595 NEXT LEFT

EXPRESS LANES TWO-AXLE VEHICLES ONLY BUSES ALLOWED

LEFT NO TRUCKS ONLY SOUTH 95 EXPRESS LANES ENTRANCE ONLY

TO BE REMOVED

SOUTH NORTH 95 W Palm Bch Miami KEEP LEFT NEXT RIGHT

NW 18TH AVE

N

0 20 100

Feet

TO BE RELOCATED

STA. 348+52

POTENTIAL SIGN SERVING SINGLE OWNERSHIP PARCEL (SALVATION ARMY). TO BE DISCUSSED WITH FDOT

$25 PLUS TOLL FOR TOLL VIOLATION

TO 595 WEST $XX.XX

TO Sheridan St $XX.XX

ONLY

95 SOUTH EXPRESS LANES

INTERSTATE 95

2045

340

540

345

545

350

550

INSET 1

INSET 2

842 BROWARD BLVD

INSET 1

SOUTH SOUTH ONLY EXPRESS

INSTALL DELINEATORS AT 5' SPACING FOR 300' (CONFIRM WITH DESIGN AND MAINTENANCE OFFICE PRIOR TO FINALIZING MASTER PLAN)

TO REMAIN

INSET 2

ONLY EXPRESS ONLY EXPRESS ONLY EXPRESS

INTERSTATE 95

2040

645

EXPRESS LANES REGISTERED CARPOOLS TOLL EXEMPT

STA. 348+05

SW 18TH AVE

EXPRESS LANES SOUTH 95 NEXT LEFT

STA. 349+67

95 SOUTH EXPRESS LANES

ONLY

TO 595 WEST $XX.XX

TO Sheridan St $XX.XX

$25 PLUS TOLL FOR TOLL VIOLATION

STA. 349+18

MATCHLINE STA. 537+44.54

MATCHLINE A

I-95 @ BROWARD BLVD INTERCHANGE ALTERNATIVE 2B
EB BROWARD BLVD TO SB 95 EXPRESS OPTION 1
SW 1st STREET ALTERNATIVE 1 (MAINTAIN EXISTING CONFIGURATION)

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

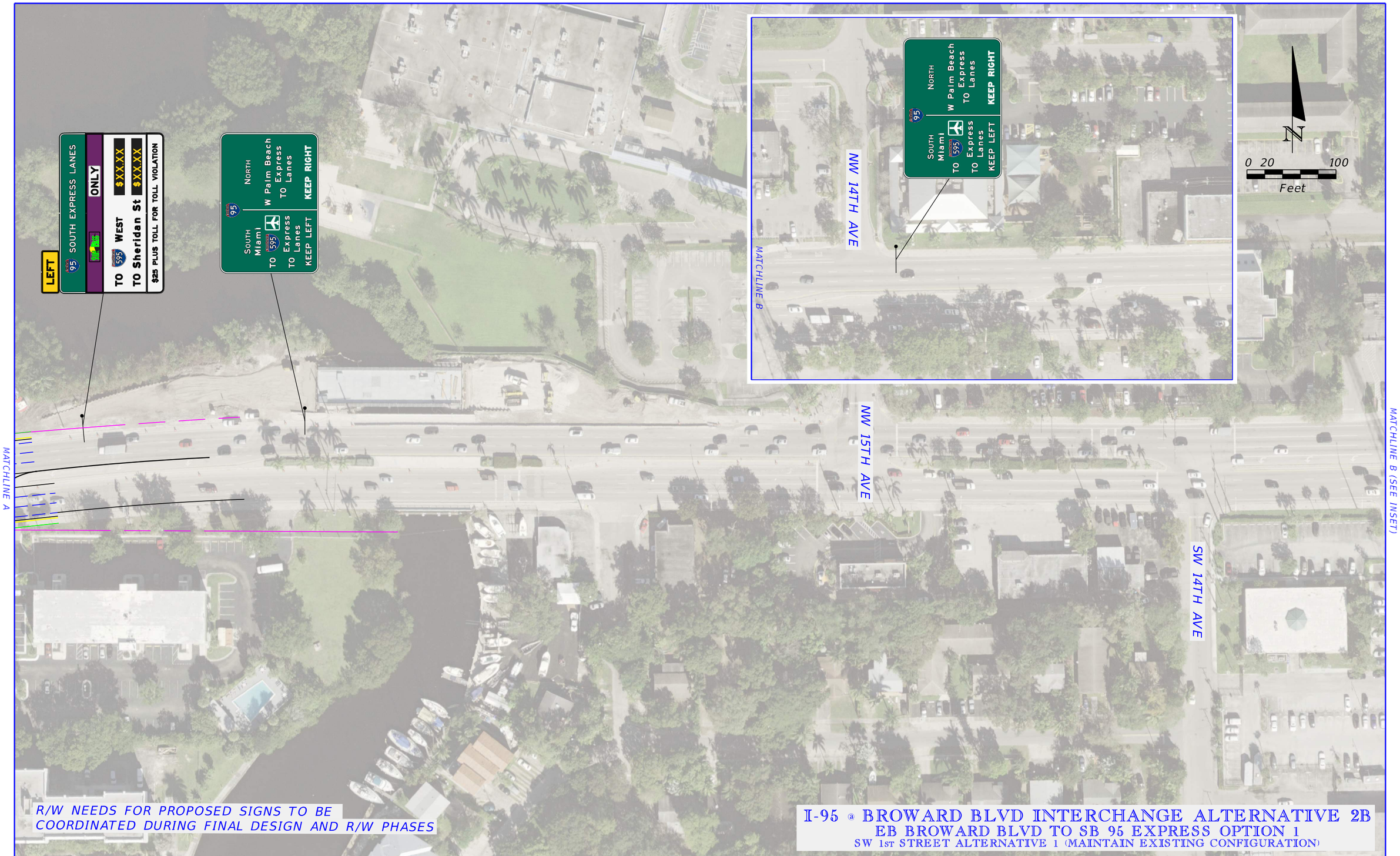
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
842	BROWARD	435513-1-22-02

BROWARD BLVD PD&E
SIGNING MASTER PLAN

SHEET NO. 16

CBEARD 12/7/2018 4:50:08 AM PW:\



I-95 @ BROWARD BLVD INTERCHANGE ALTERNATIVE 2B
EB BROWARD BLVD TO SB 95 EXPRESS OPTION 1
SW 1ST STREET ALTERNATIVE 1 (MAINTAIN EXISTING CONFIGURATION)

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
842	BROWARD	435513-1-22-02

BROWARD BLVD PD&E
SIGNING MASTER PLAN

SHEET NO. 17

CBEARD 12/7/2018 4:45:47 AM PW:\

MATCHLINE STA. 2049+20.11

4310
4315
4320
2050
2055
2060
3110
3115
INSET 1
95
EXPRESS LANES
REGISTERED CARPOOLS TOLL EXEMPT
STA. 2053+39
EXPRESS LANES
TWO-AXLE VEHICLES ONLY
BUSES ALLOWED
EXPRESS LANES ENTRANCE KEEP RIGHT
STA. 2052+39
STOP HERE ON RED
STOP HERE ON RED
EXPRESS LANES
TO Oakland Park Blvd
$XXXX
ONLY
$25 PLUS TOLL FOR TOLL VIOLATION
STA. 2055+06
1 VEHICLE PER GREEN EACH LANE
I-95 NORTH
W Palm Beach
EXPRESS LANES ENTRANCE
ONLY
NO TRUCKS
XXXXXXXXXXXXXXX
STA. 2057+57
INSET 1
EXPRESS
N
0 20 100
Feet

I-95 @ BROWARD BLVD INTERCHANGE ALTERNATIVE 2B
EB BROWARD BLVD TO SB 95 EXPRESS OPTION 1
SW 1ST STREET ALTERNATIVE 1 (MAINTAIN EXISTING CONFIGURATION)

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

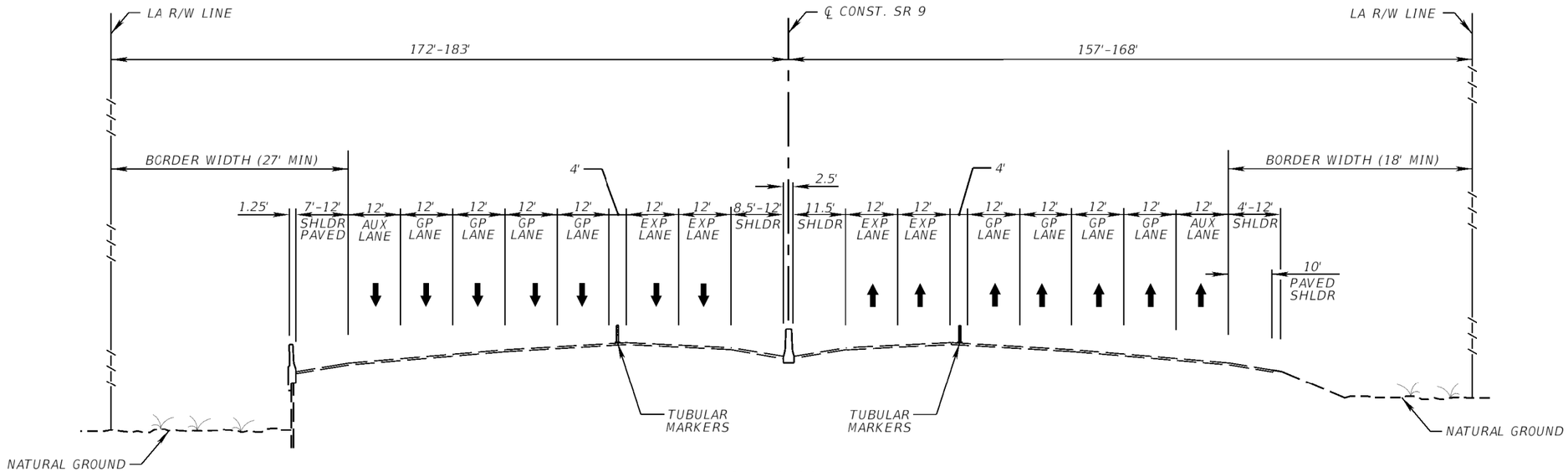
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
842	BROWARD	435513-1-22-02

BROWARD BLVD PD&E
SIGNING MASTER PLAN

SHEET NO. 18

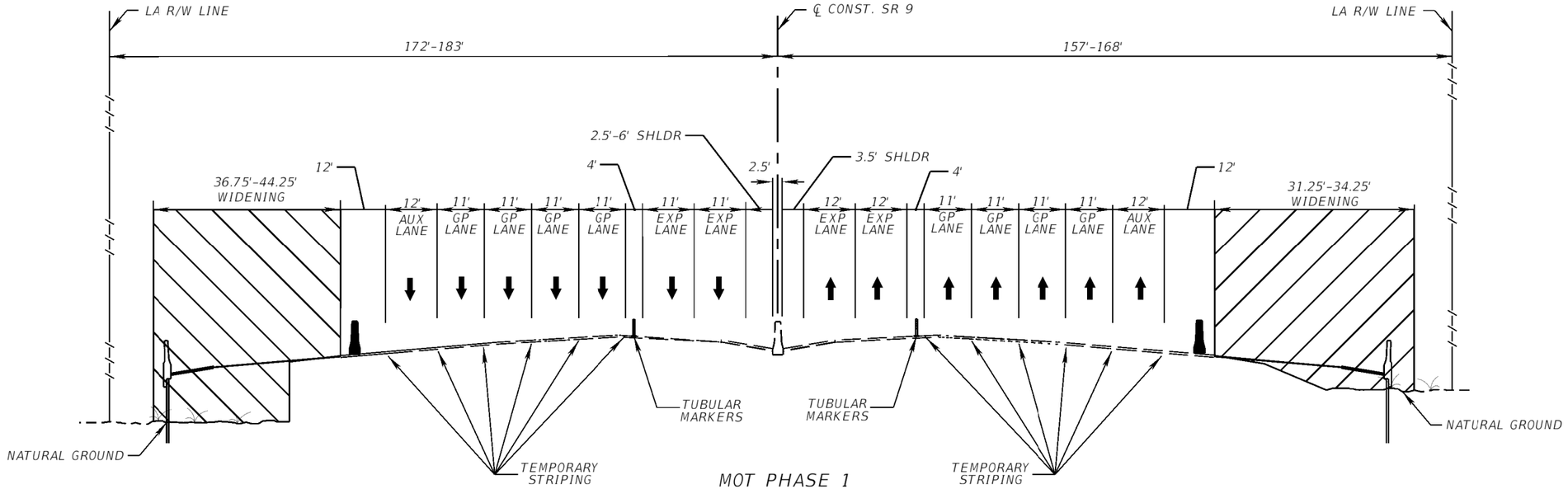
CBEARD 10/12/2018 11:36:57 AM PW:\



EXISTING CONDITION

℄ CONST. I-95

STA. 2077+00.00 TO STA. 2083+00.00



MOT PHASE 1

℄ CONST. I-95

STA. 2077+00.00 TO STA. 2083+00.00

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

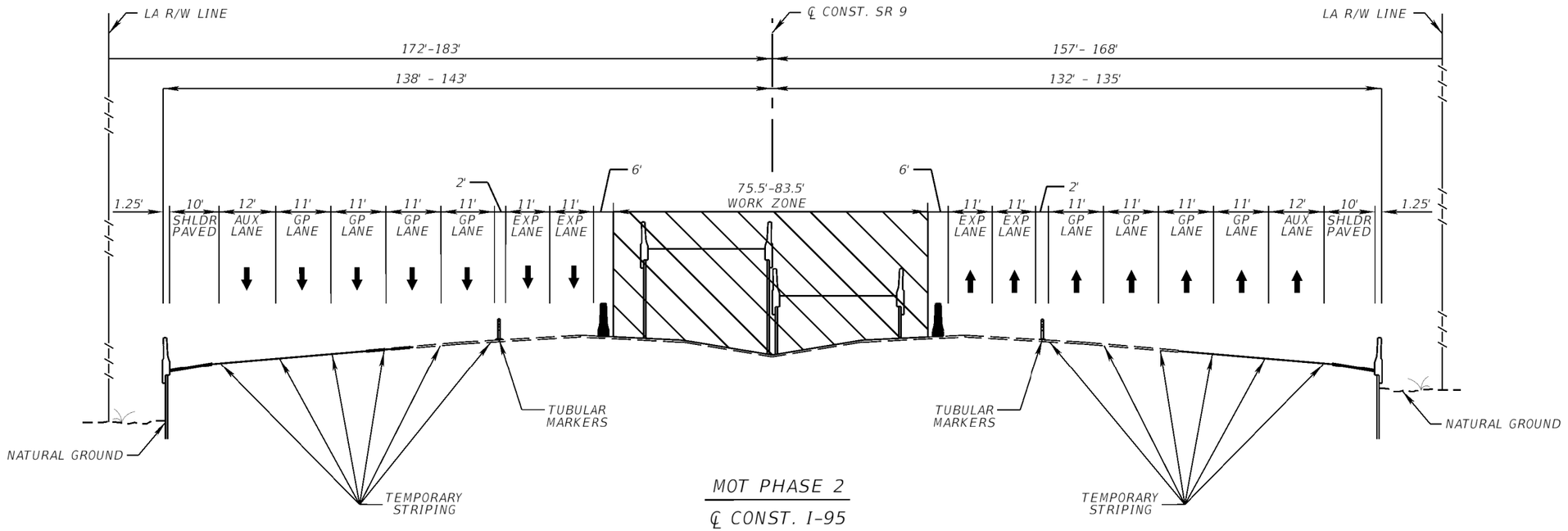
CTS ENGINEERING, INC.
3230 W. COMMERCIAL BLVD, STE 220
FORT LAUDERDALE, FL 33309
FL COA #28935

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
9	BROWARD	

TYPICAL SECTIONS

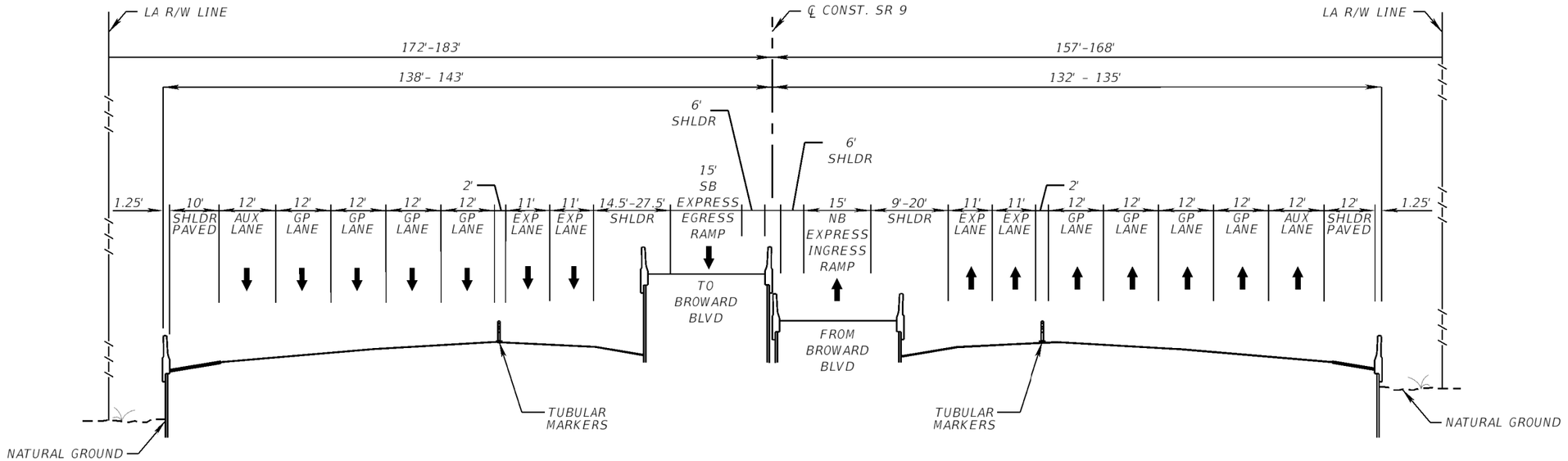
SHEET NO. 19



MOT PHASE 2

℄ CONST. I-95

STA. 2077+00.00 TO STA. 2083+00.00



FINAL CONDITION

℄ CONST. I-95

STA. 2077+00.00 TO STA. 2083+00.00

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

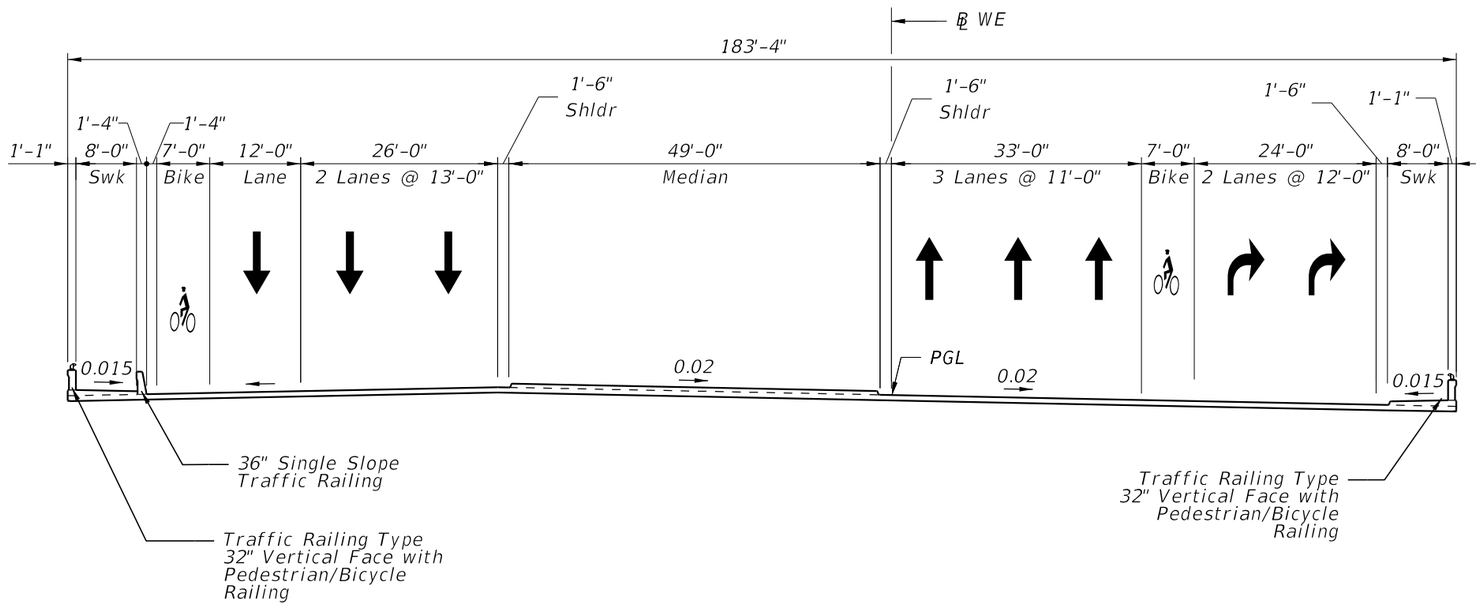
CTS ENGINEERING, INC.
3230 W. COMMERCIAL BLVD, STE 220
FORT LAUDERDALE, FL 33309
FL COA #28935

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
9	BROWARD	

TYPICAL SECTIONS

SHEET NO. 20



BROWARD BOULEVARD OVER SFRC RR

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REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

BOLTON PEREZ & ASSOCIATES
7205 CORPORATE CENTER DRIVE, SUITE 201
MIAMI, FLORIDA 33126
CERTIFICATE OF AUTHORIZATION 7904
JOAQUIN PEREZ, P.E.
P.E. LICENSE NUMBER 37336

DRAWN BY:	HOL
CHECKED BY:	JP
DESIGNED BY:	JP
CHECKED BY:	JP

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
	BROWARD	

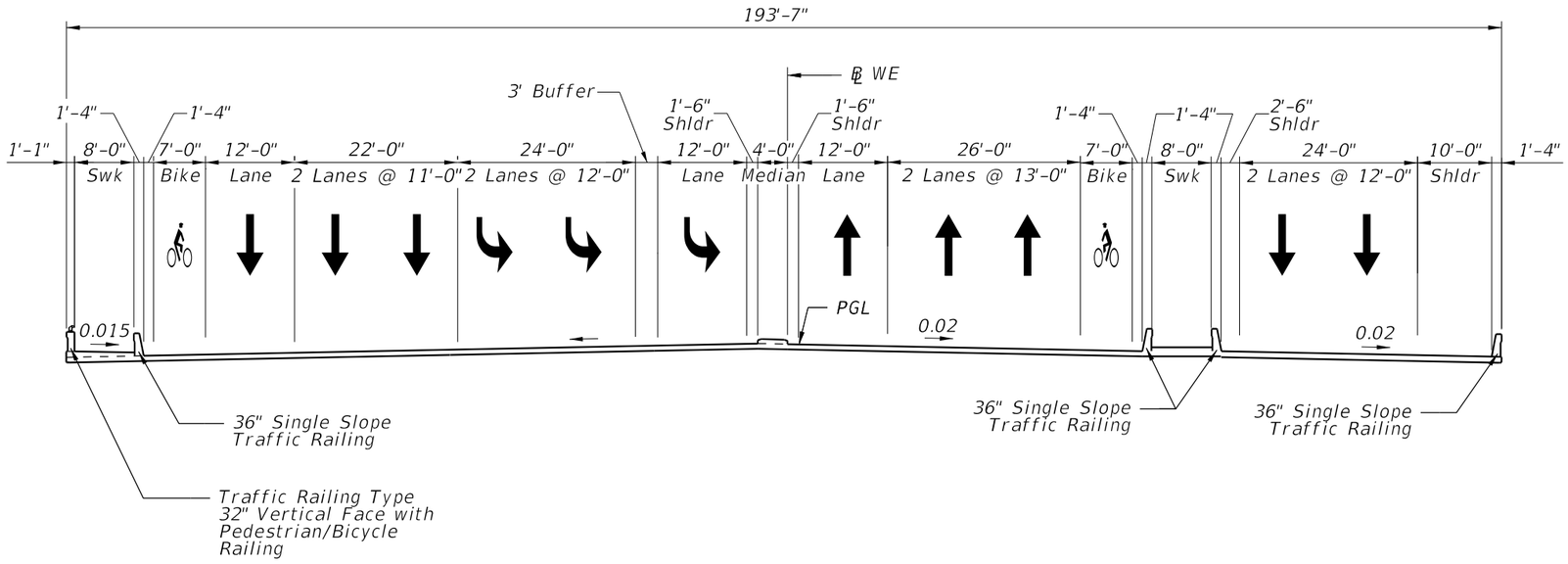
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REF. DWG. NO.:

PROJECT NAME: BROWARD BOULEVARD

SHEET NO.: TS-1

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BROWARD BOULEVARD OVER I-95

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REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

BOLTON PEREZ & ASSOCIATES
7205 CORPORATE CENTER DRIVE, SUITE 201
MIAMI, FLORIDA 33126
CERTIFICATE OF AUTHORIZATION 7904
JOAQUIN PEREZ, P.E.
P.E. LICENSE NUMBER 37336

DRAWN BY:	CHECKED BY:	DESIGNED BY:	CHECKED BY:
HOL	JP	JP	JP

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
	BROWARD	

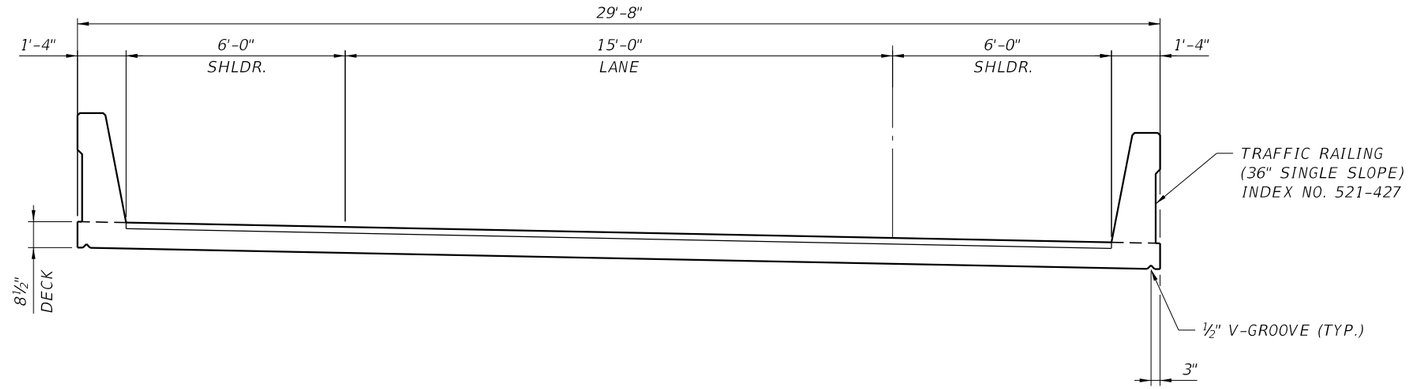
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REF. DWG. NO.:

PROJECT NAME: BROWARD BOULEVARD

SHEET NO.: TS-2

MHENRIQU 8/1/2019 11:56:31 AM PW:\



TYPICAL SECTION

RAMP B
RAMP C
RAMP D
RAMP E

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John Danielsen, P.E.
P.E. LICENSE NUMBER 41875
HDR Engineering, Inc.
3250 West Commercial Blvd, Suite 100
Fort Lauderdale, FL 33309-3459
CERTIFICATE OF AUTHORIZATION 4213

DRAWN BY: TC
CHECKED BY:
DESIGNED BY: JJC
CHECKED BY:

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

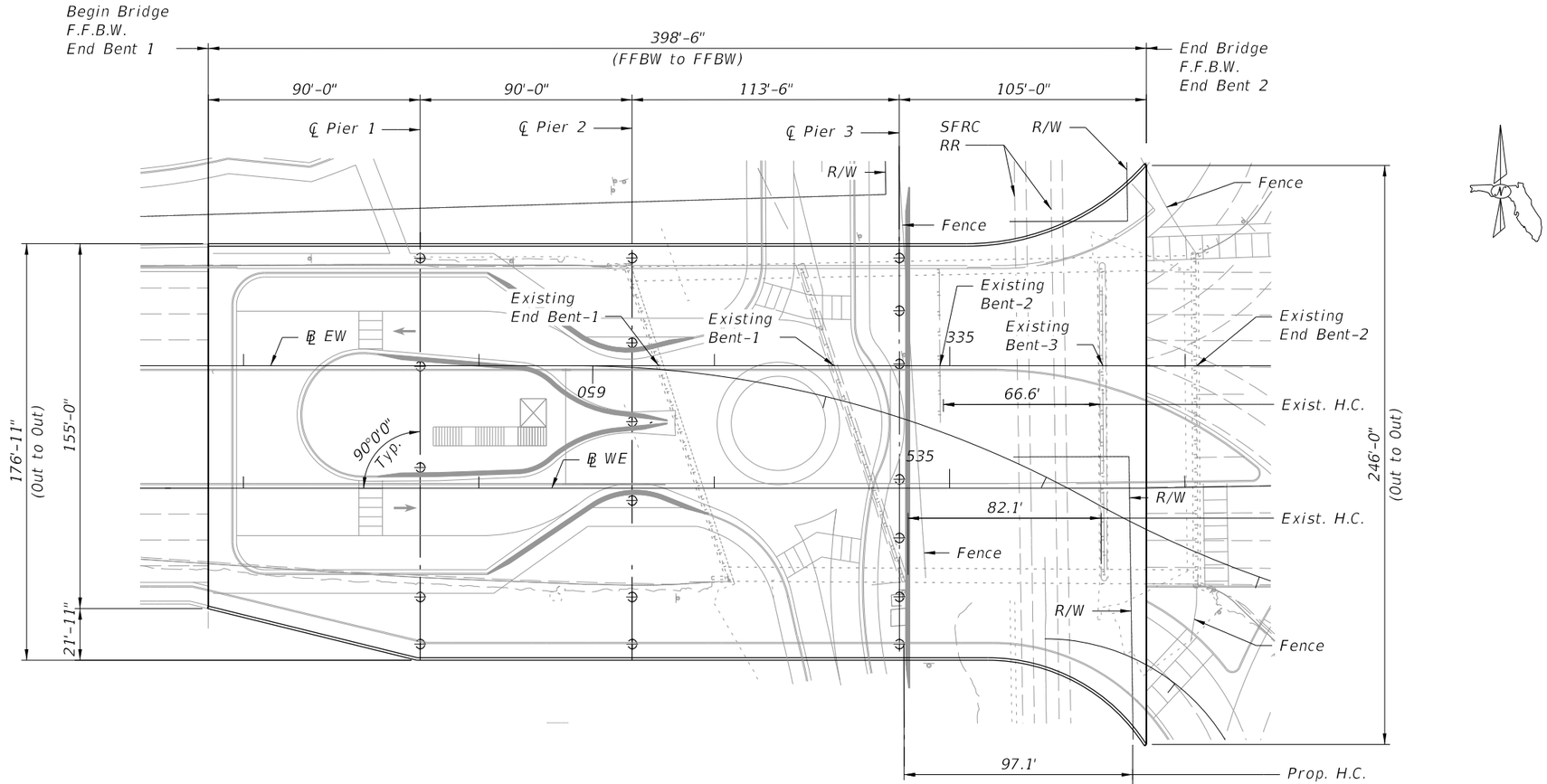
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9	BROWARD	435512-1-22-02

SHEET TITLE: TYPICAL SECTION

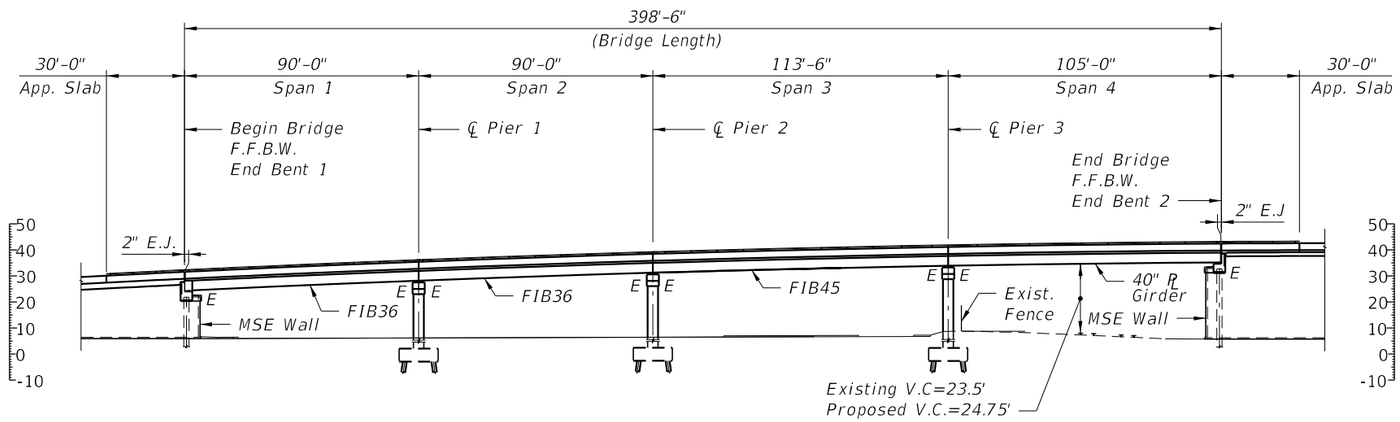
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PROJECT NAME: SR-9/I-95 @ SR-842/BROWARD BOULEVARD INTERCHANGE IMPROVEMENTS

SHEET NO.: TS-3



PLAN



ELEVATION

Bridge No. 860257

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

BOLTON PEREZ & ASSOCIATES
7205 CORPORATE CENTER DRIVE, SUITE 201
MIAMI, FLORIDA 33126
CERTIFICATE OF AUTHORIZATION 7904
JOAQUIN PEREZ, P.E.
P.E. LICENSE NUMBER 37336

DRAWN BY: HOL
CHECKED BY: JP
DESIGNED BY: JP
CHECKED BY: JP

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

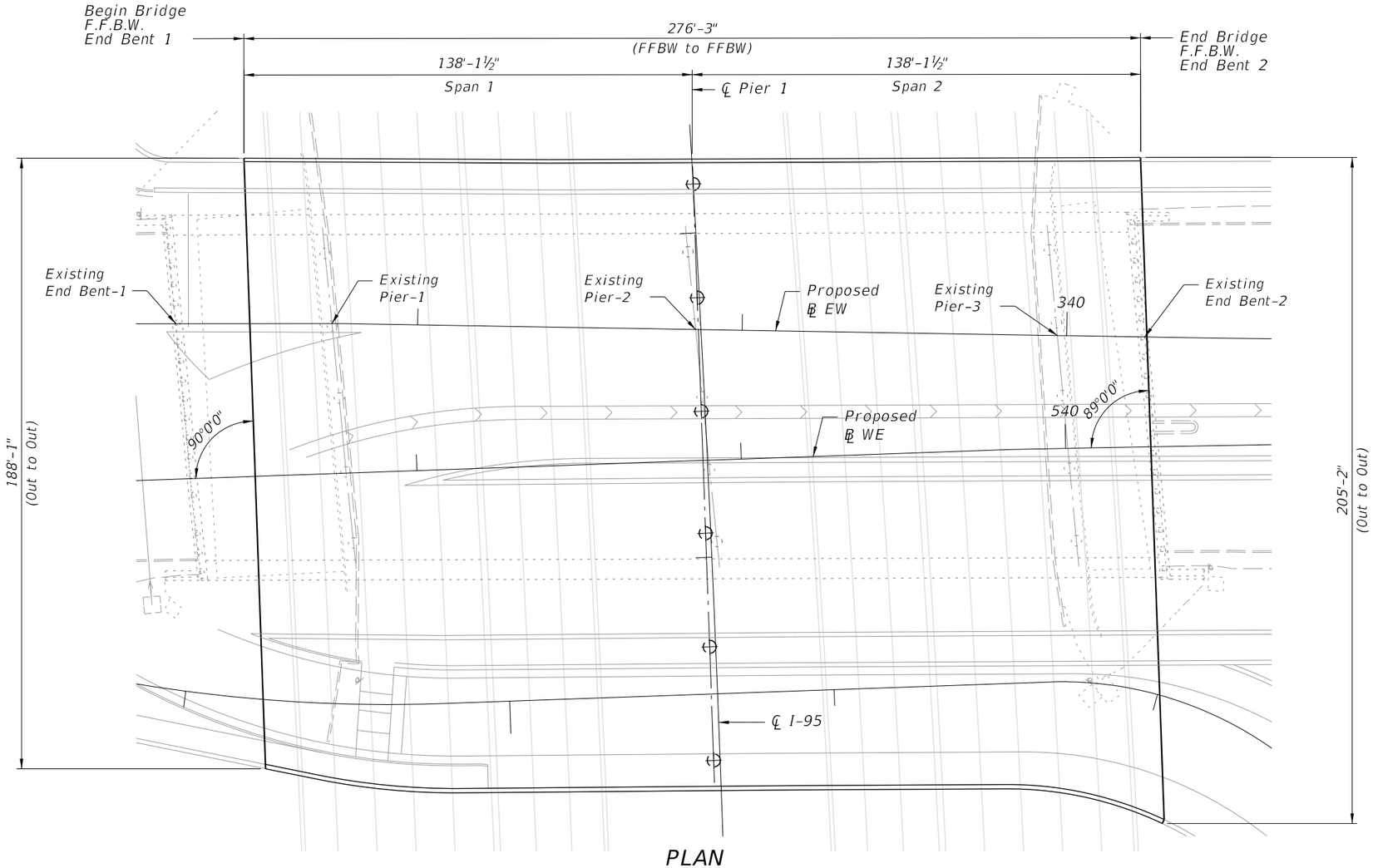
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	BROWARD	435513-1-22-02

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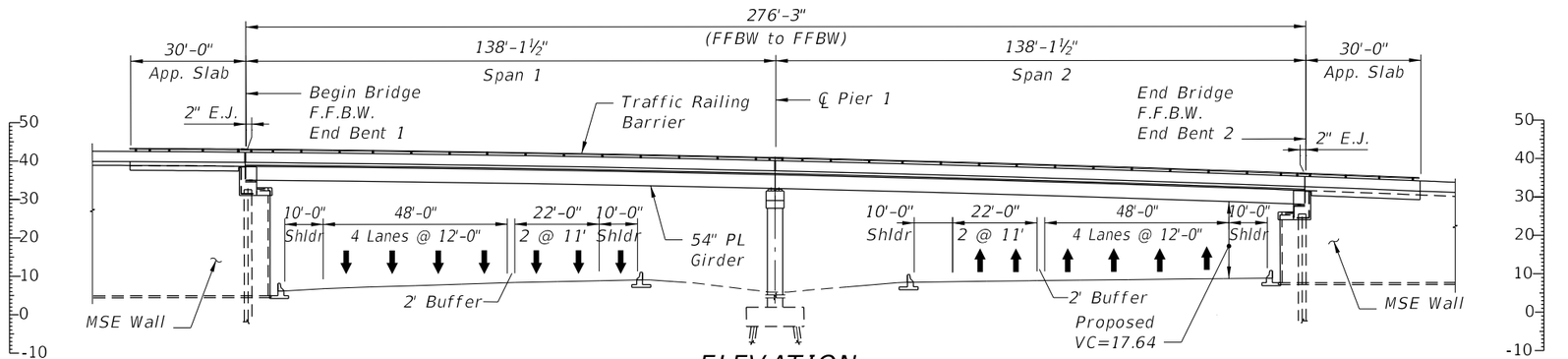
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PROJECT NAME: BROWARD BOULEVARD OVER SFRC RR

SHEET NO. B-1



PLAN



ELEVATION
(Reflected View)

Bridge No. 860269

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

BOLTON PEREZ & ASSOCIATES
7205 CORPORATE CENTER DRIVE, SUITE 201
MIAMI, FLORIDA 33126
CERTIFICATE OF AUTHORIZATION 7904
JOAQUIN PEREZ, P.E.
P.E. LICENSE NUMBER 37336

DRAWN BY:	CHECKED BY:	DESIGNED BY:	CHECKED BY:
HOL	JP	JP	JP

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
	BROWARD	435513-1-22-02

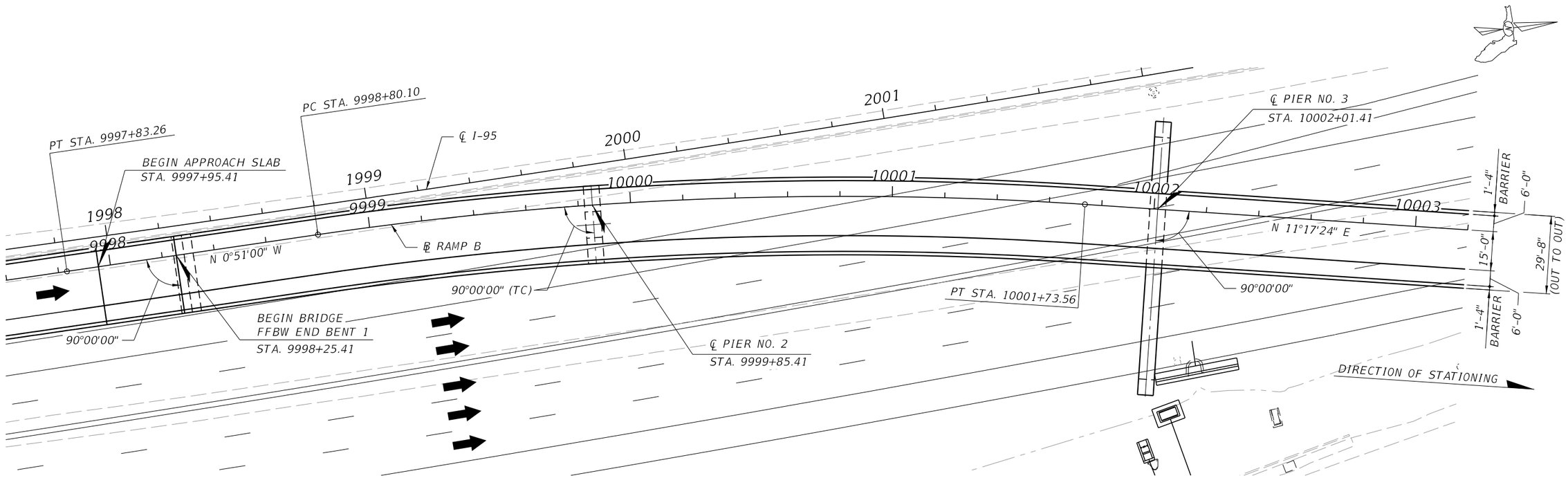
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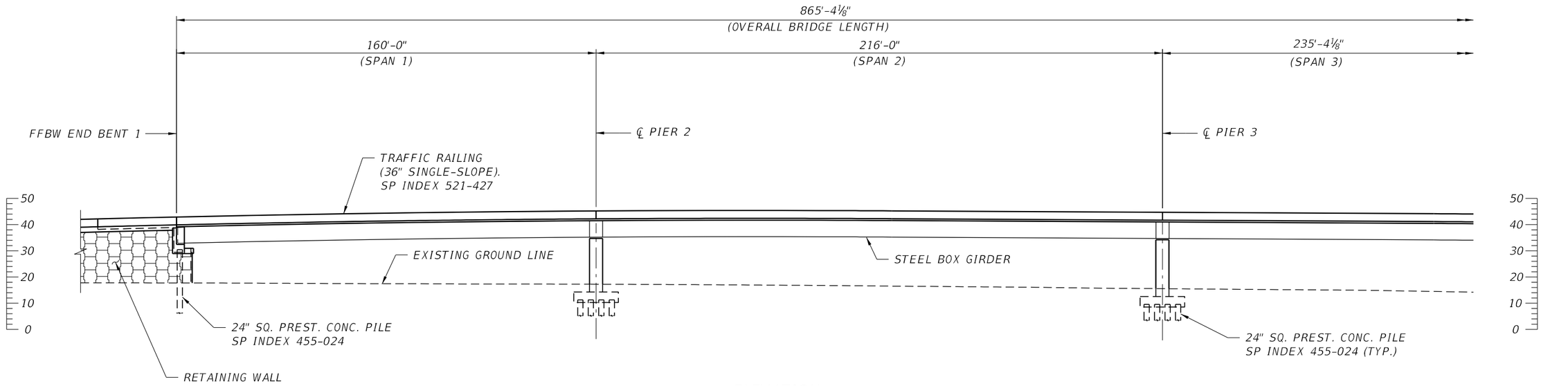
PROJECT NAME: BROWARD BOULEVARD OVER I-95

SHEET NO.

$USER$ $DATE$ $TIME$ $FILE$



PLAN



ELEVATION

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

John Danielsen, P.E.
P.E. LICENSE NUMBER 41875
HDR Engineering, Inc.
3250 West Commercial Blvd, Suite 100
Fort Lauderdale, FL 33309-3459
CERTIFICATE OF AUTHORIZATION 4213

DRAWN BY:	
CHECKED BY:	
DESIGNED BY:	
CHECKED BY:	

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9	BROWARD	435512-1-22-02

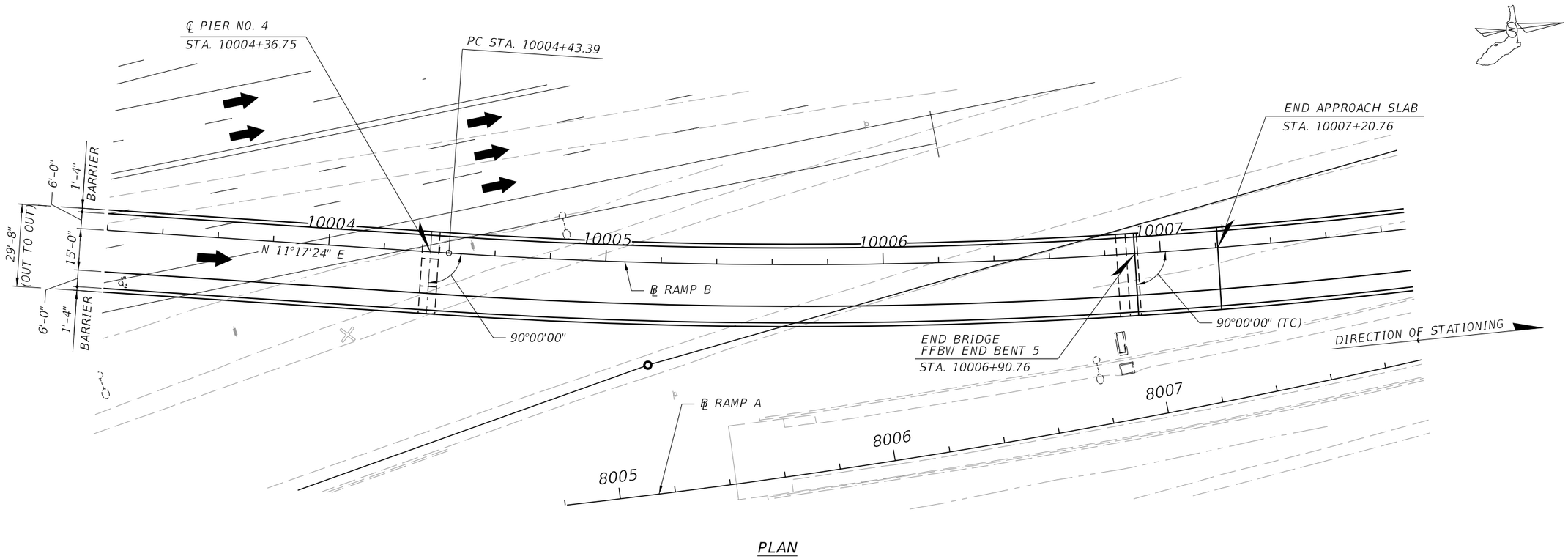
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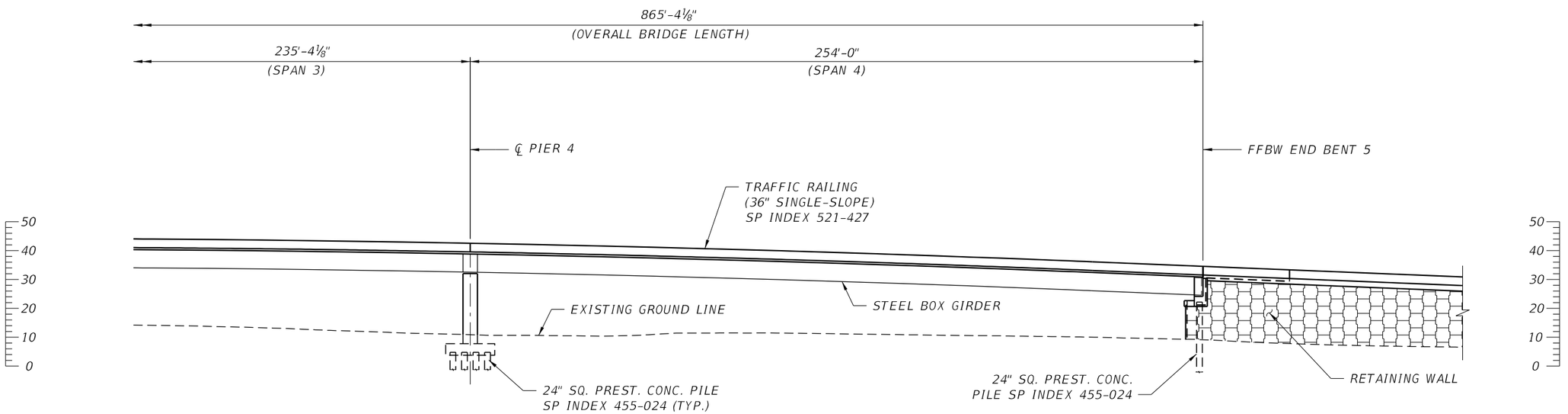
PROJECT NAME: SR-9/I-95 @ SR-842/BROWARD BOULEVARD INTERCHANGE IMPROVEMENTS

SHEET NO.: B1-1

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John Danielsen, P.E.
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HDR Engineering, Inc.
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CERTIFICATE OF AUTHORIZATION 4213

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CHECKED BY:
DESIGNED BY:
CHECKED BY:

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9	BROWARD	435512-1-22-02

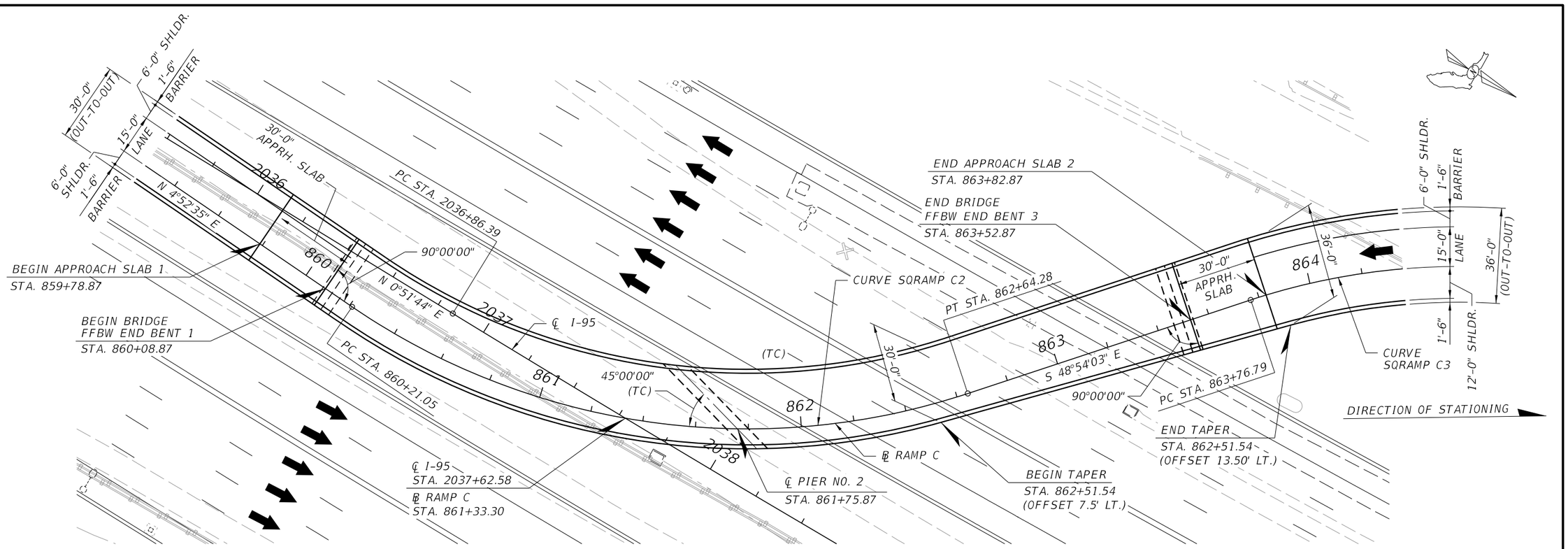
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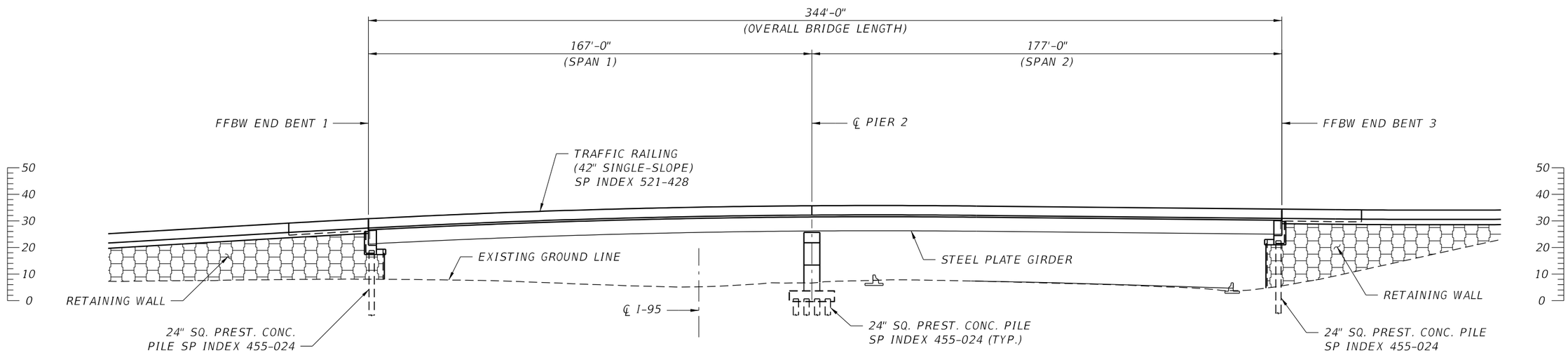
PROJECT NAME: SR-9/I-95 @ SR-842/BROWARD BOULEVARD INTERCHANGE IMPROVEMENTS

SHEET NO.: B1-2

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HDR Engineering, Inc.
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CERTIFICATE OF AUTHORIZATION 4213

DRAWN BY:
CHECKED BY:
DESIGNED BY:
CHECKED BY:

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9	BROWARD	435512-1-22-02

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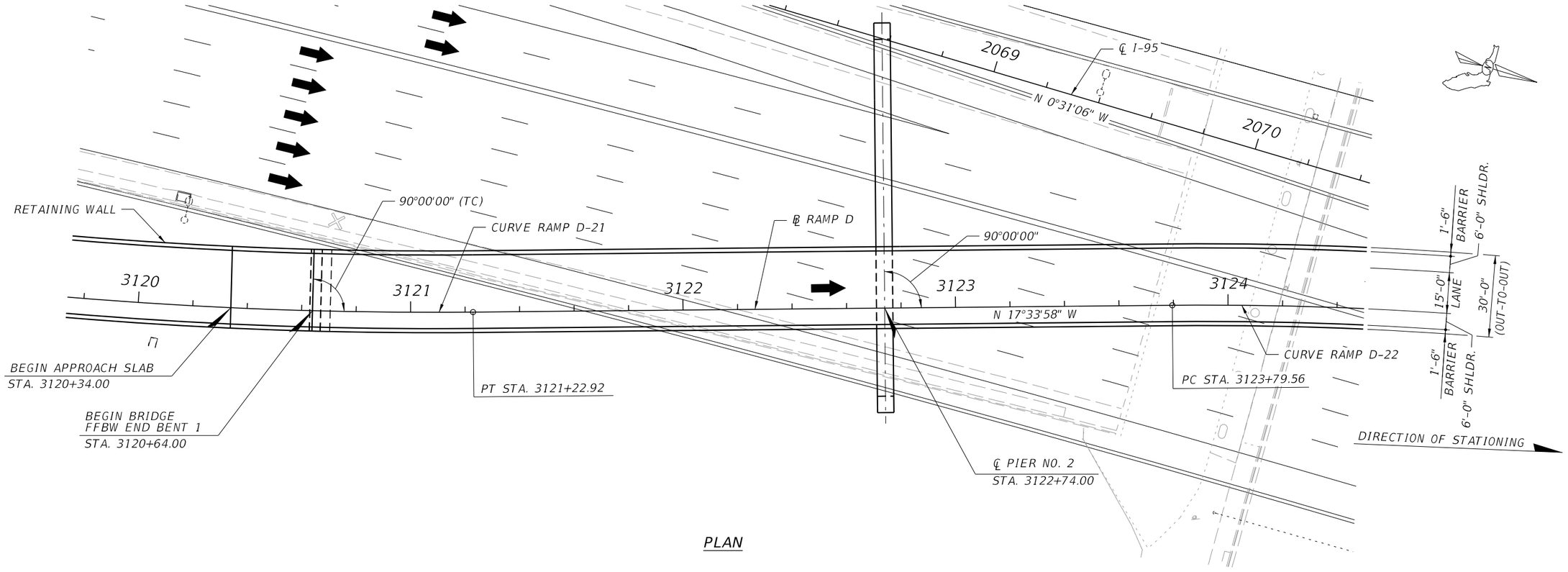
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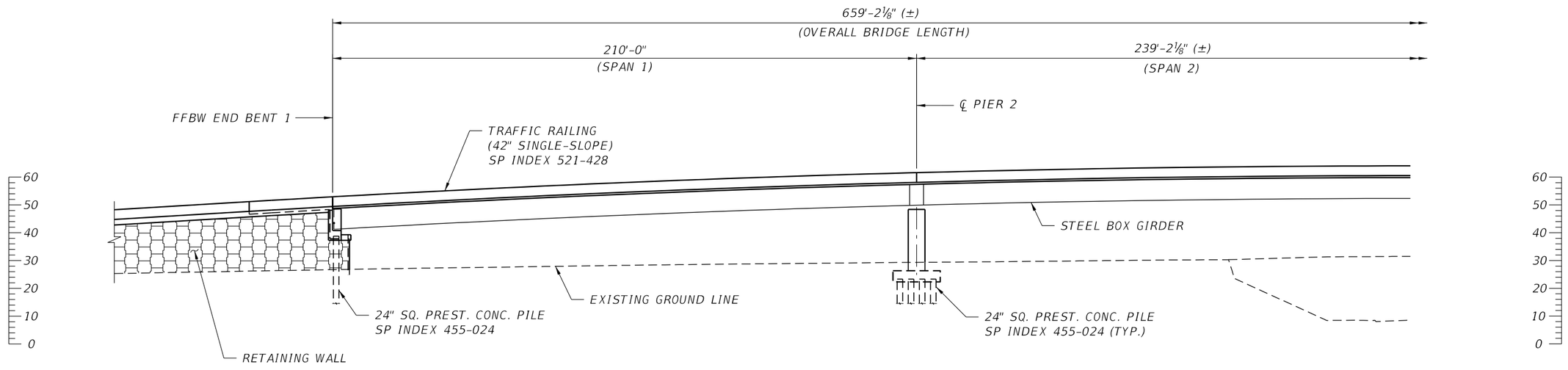
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John Danielsen, P.E.
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HDR Engineering, Inc.
3250 West Commercial Blvd, Suite 100
Fort Lauderdale, FL 33309-3459
CERTIFICATE OF AUTHORIZATION 4213

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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9	BROWARD	435512-1-22-02

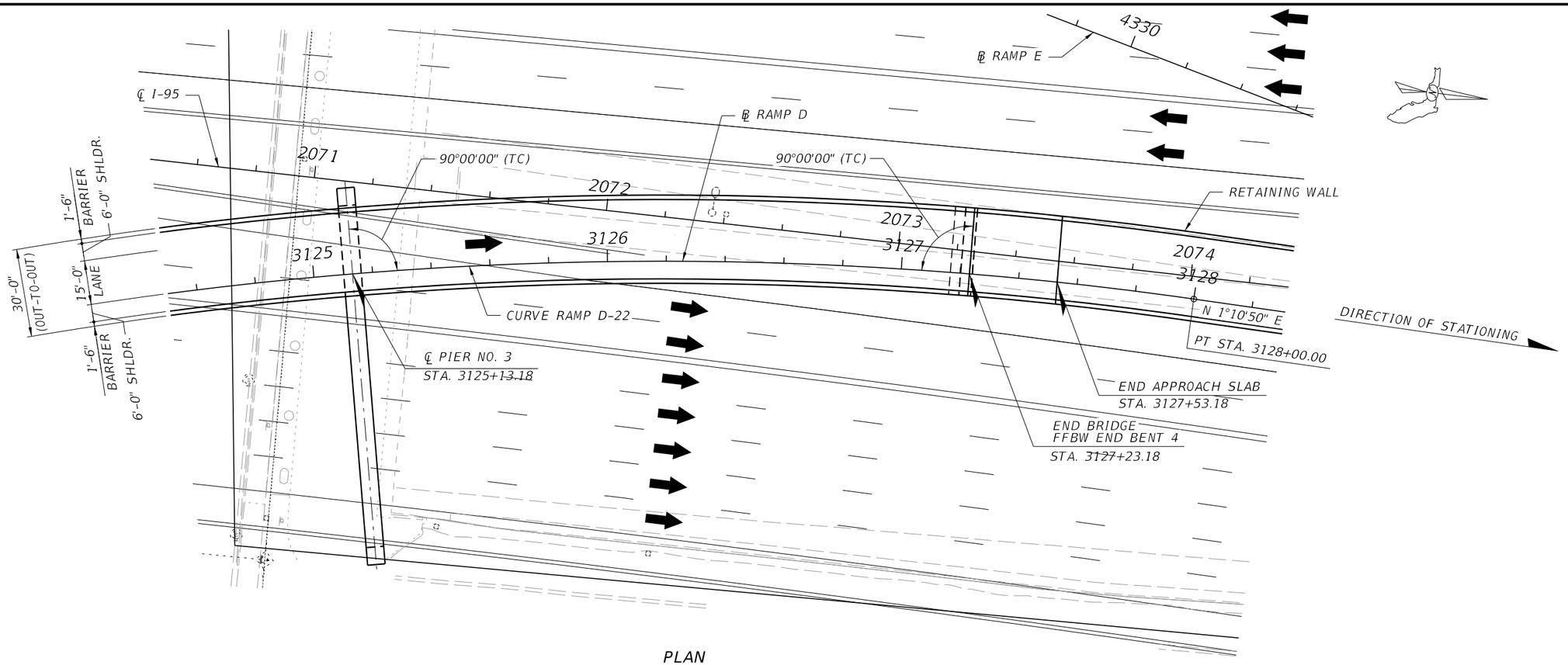
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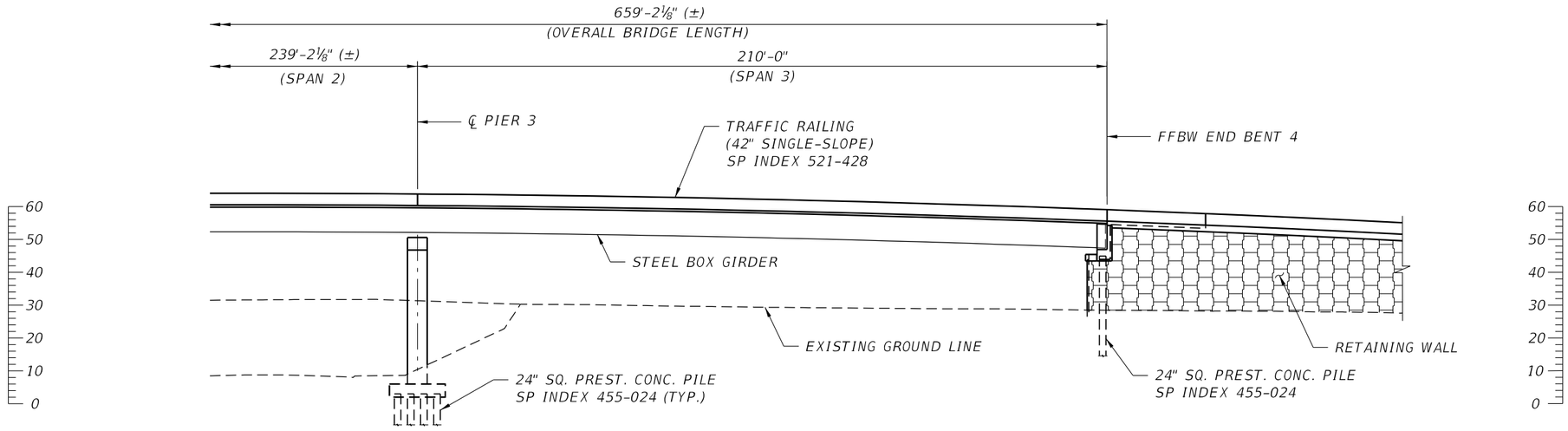
PROJECT NAME: SR-9/I-95 @ SR-842/BROWARD BOULEVARD INTERCHANGE IMPROVEMENTS

SHEET NO.: B3-1

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John Danielsen, P.E.
P.E. LICENSE NUMBER 41875
HDR Engineering, Inc.
3250 West Commercial Blvd, Suite 100
Fort Lauderdale, FL 33309-3459
CERTIFICATE OF AUTHORIZATION 4213

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CHECKED BY:

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9	BROWARD	435512-1-22-02

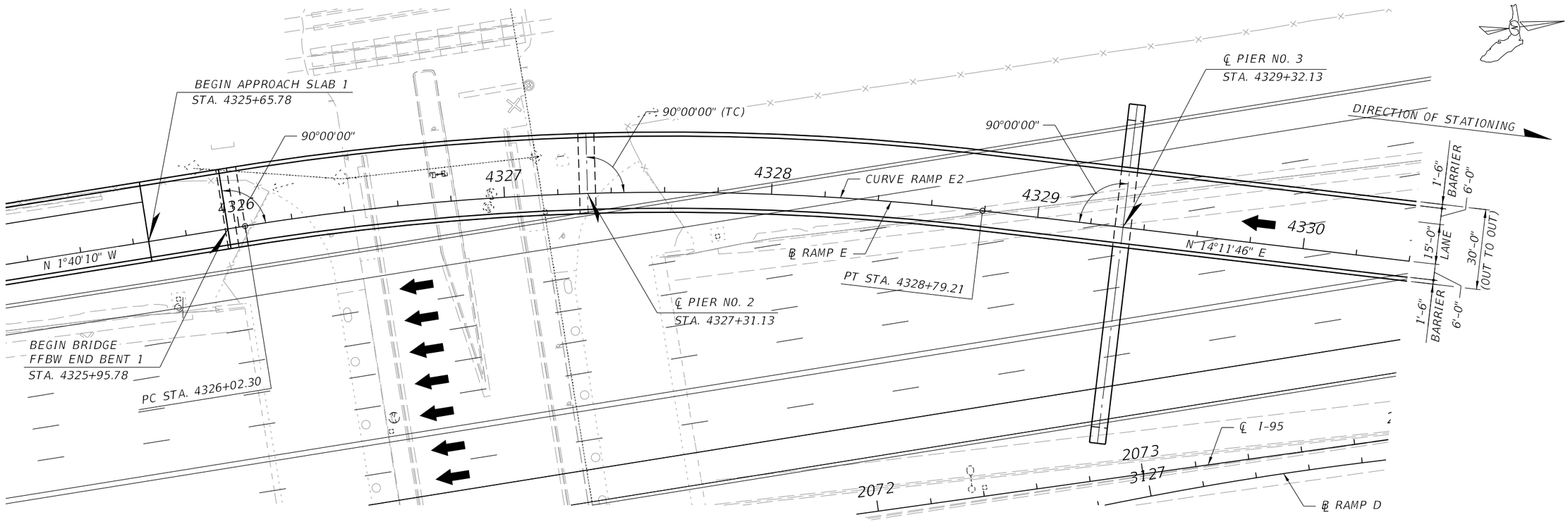
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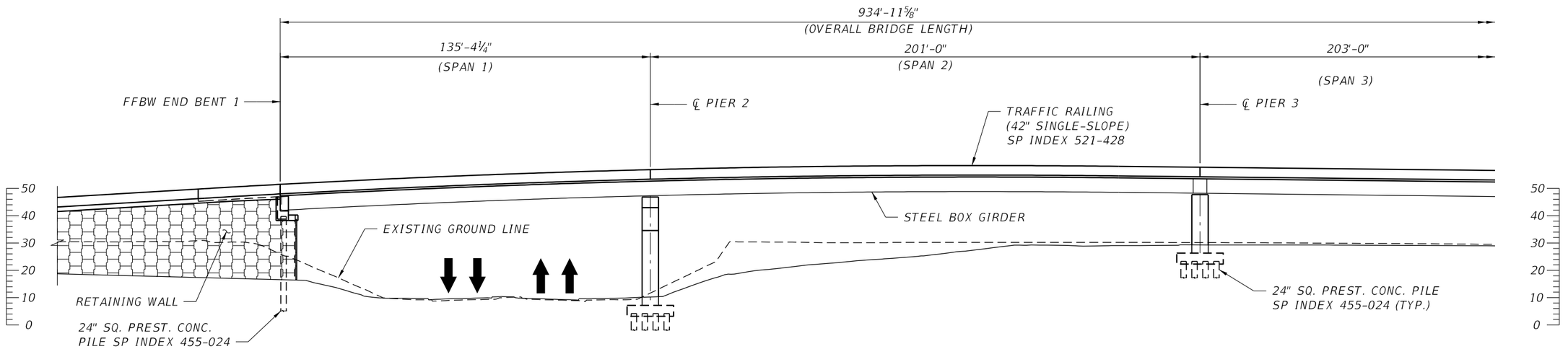
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DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

John Danielsen, P.E.
P.E. LICENSE NUMBER 41875
HDR Engineering, Inc.
3250 West Commercial Blvd, Suite 100
Fort Lauderdale, FL 33309-3459
CERTIFICATE OF AUTHORIZATION 4213

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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9	BROWARD	435512-1-22-02

SHEET TITLE: RAMP E - PLAN AND ELEVATION (1 OF 2)

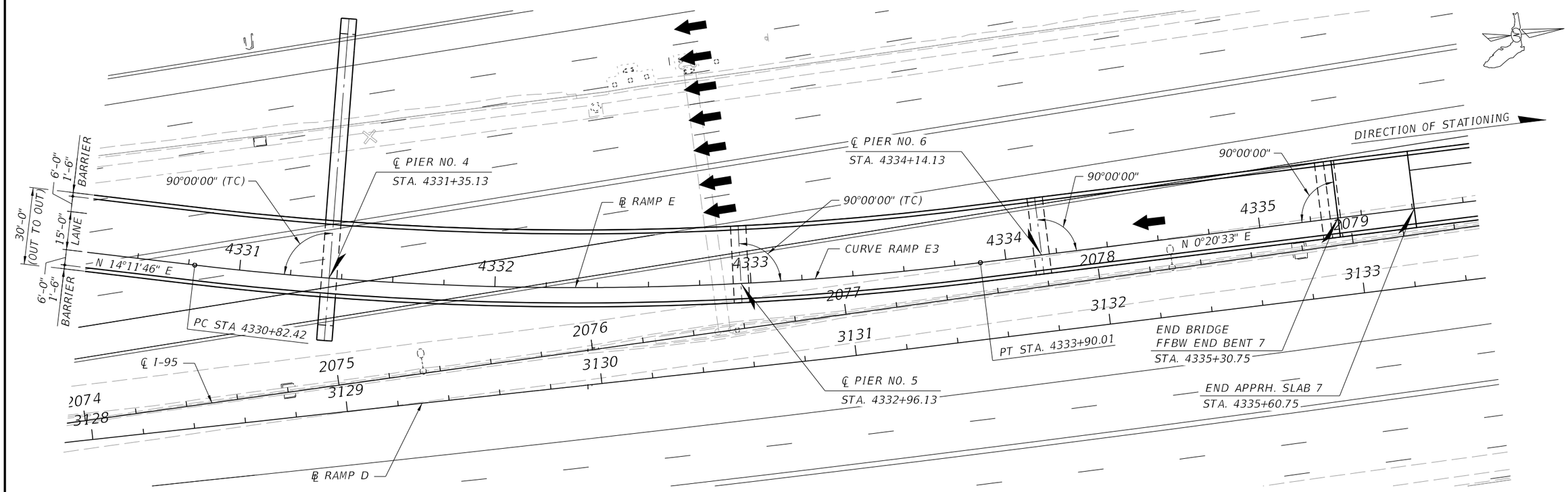
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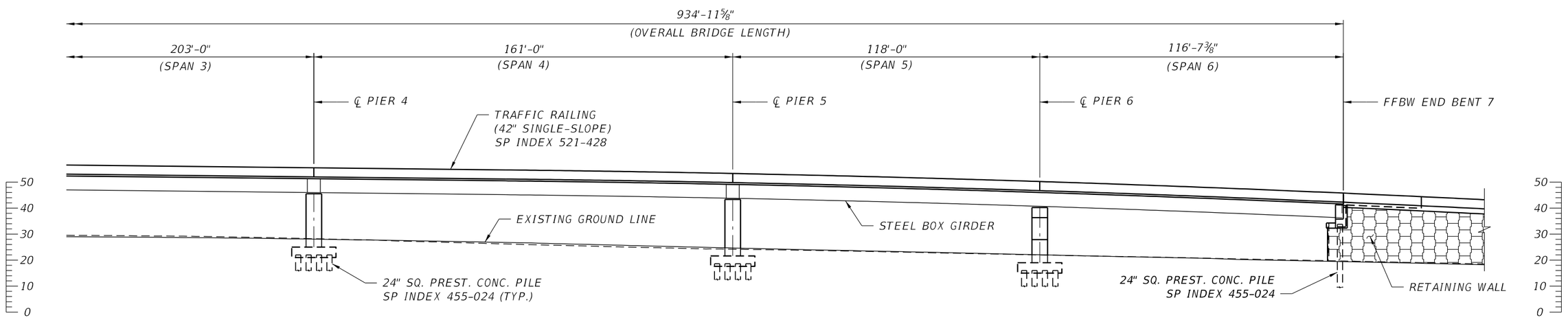
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PLAN



ELEVATION

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DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

John Danielsen, P.E.
P.E. LICENSE NUMBER 41875
HDR Engineering, Inc.
3250 West Commercial Blvd, Suite 100
Fort Lauderdale, FL 33309-3459
CERTIFICATE OF AUTHORIZATION 4213

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CHECKED BY:
DESIGNED BY:
CHECKED BY:

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9	BROWARD	435512-1-22-02

SHEET TITLE: RAMP E - PLAN AND ELEVATION (2 OF 2)

REF. DWG. NO.:

PROJECT NAME: SR-9/I-95 @ SR-842/BROWARD BOULEVARD INTERCHANGE IMPROVEMENTS

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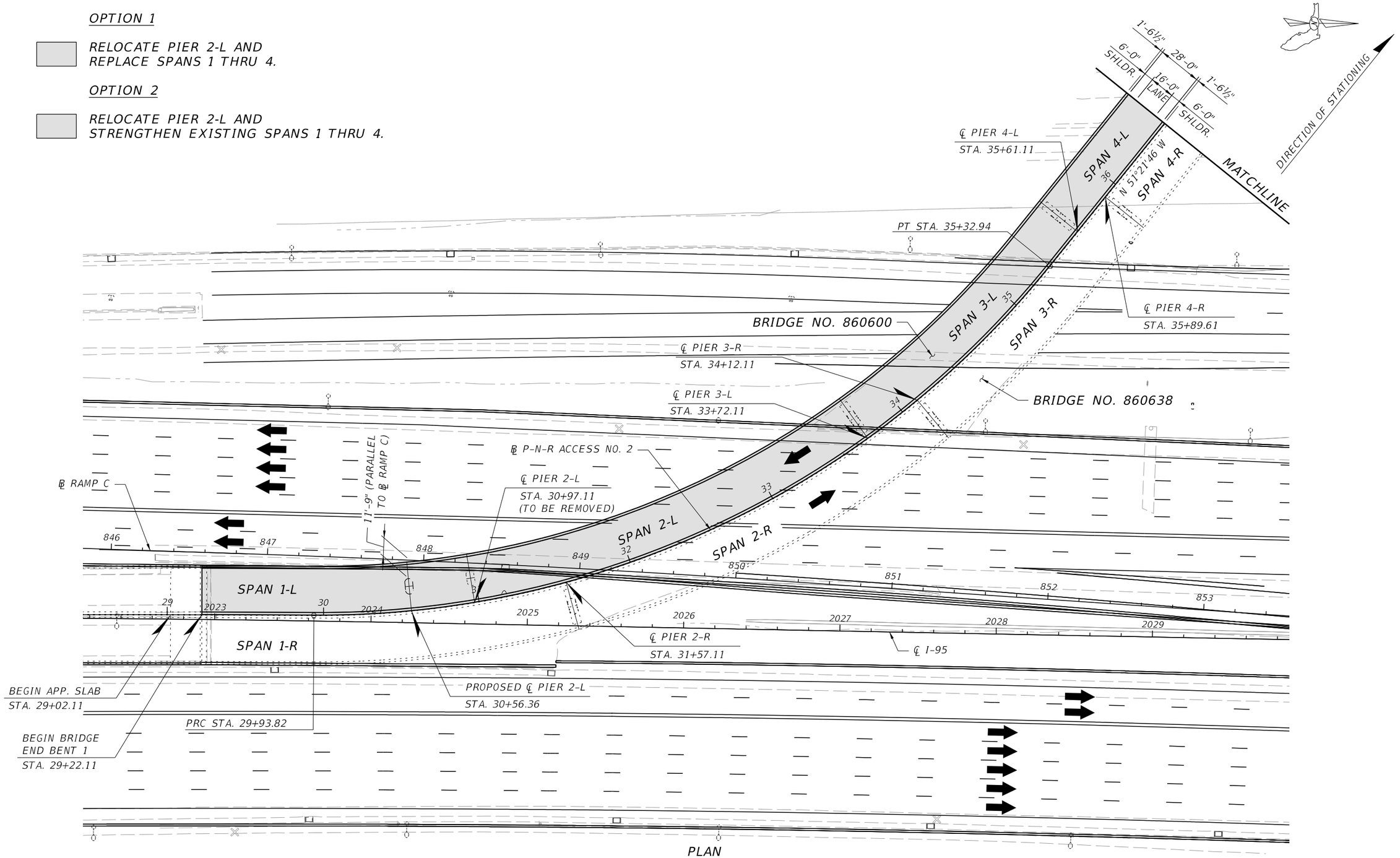
THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

OPTION 1

RELOCATE PIER 2-L AND REPLACE SPANS 1 THRU 4.

OPTION 2

RELOCATE PIER 2-L AND STRENGTHEN EXISTING SPANS 1 THRU 4.



PLAN

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John Danielsen, P.E.
P.E. LICENSE NUMBER 41875
HDR Engineering, Inc.
3250 West Commercial Blvd, Suite 100
Fort Lauderdale, FL 33309-3459
CERTIFICATE OF AUTHORIZATION 4213

DRAWN BY:	CHECKED BY:	DESIGNED BY:	CHECKED BY:
TC	JJC	JJC	JGD

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9	BROWARD	435512-1-22-02

SHEET TITLE: *PLAN - OPTIONS 1 & 2 (1 OF 2)*

REF. DWG. NO.:

PROJECT NAME: *SR-9/I-95 @ SR-842/BROWARD BOULEVARD INTERCHANGE IMPROVEMENTS*

SHEET NO.: B6-1

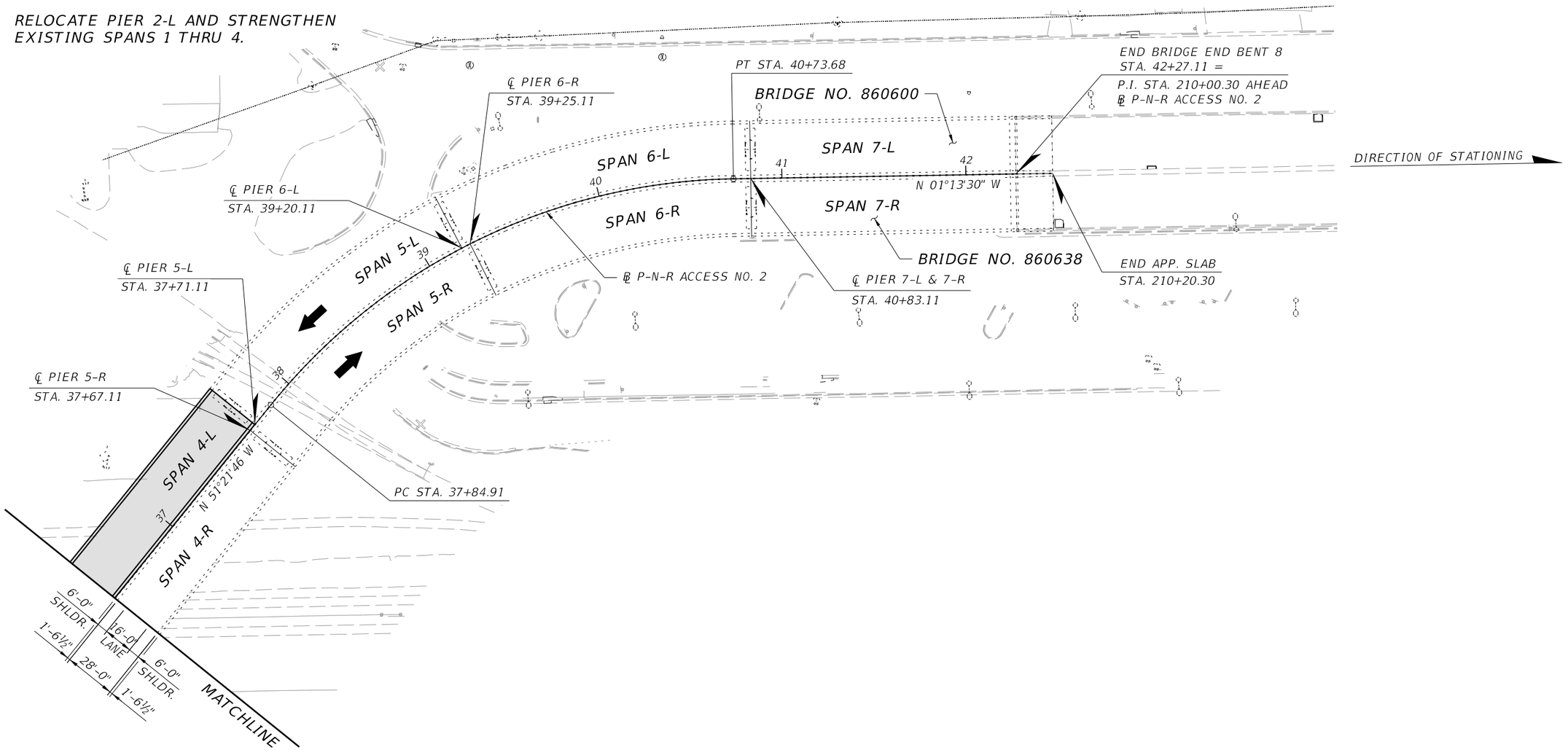
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OPTION 1

RELOCATE PIER 2-L AND REPLACE SPANS 1 THRU 4.

OPTION 2

RELOCATE PIER 2-L AND STRENGTHEN EXISTING SPANS 1 THRU 4.



PLAN

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

John Danielsen, P.E.
P.E. LICENSE NUMBER 41875
HDR Engineering, Inc.
3250 West Commercial Blvd, Suite 100
Fort Lauderdale, FL 33309-3459
CERTIFICATE OF AUTHORIZATION 4213

DRAWN BY:	TC
CHECKED BY:	JJC
DESIGNED BY:	JJC
CHECKED BY:	JGD

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9	BROWARD	435512-1-22-02

SHEET TITLE: *PLAN - OPTIONS 1 & 2 (2 OF 2)*

REF. DWG. NO.:

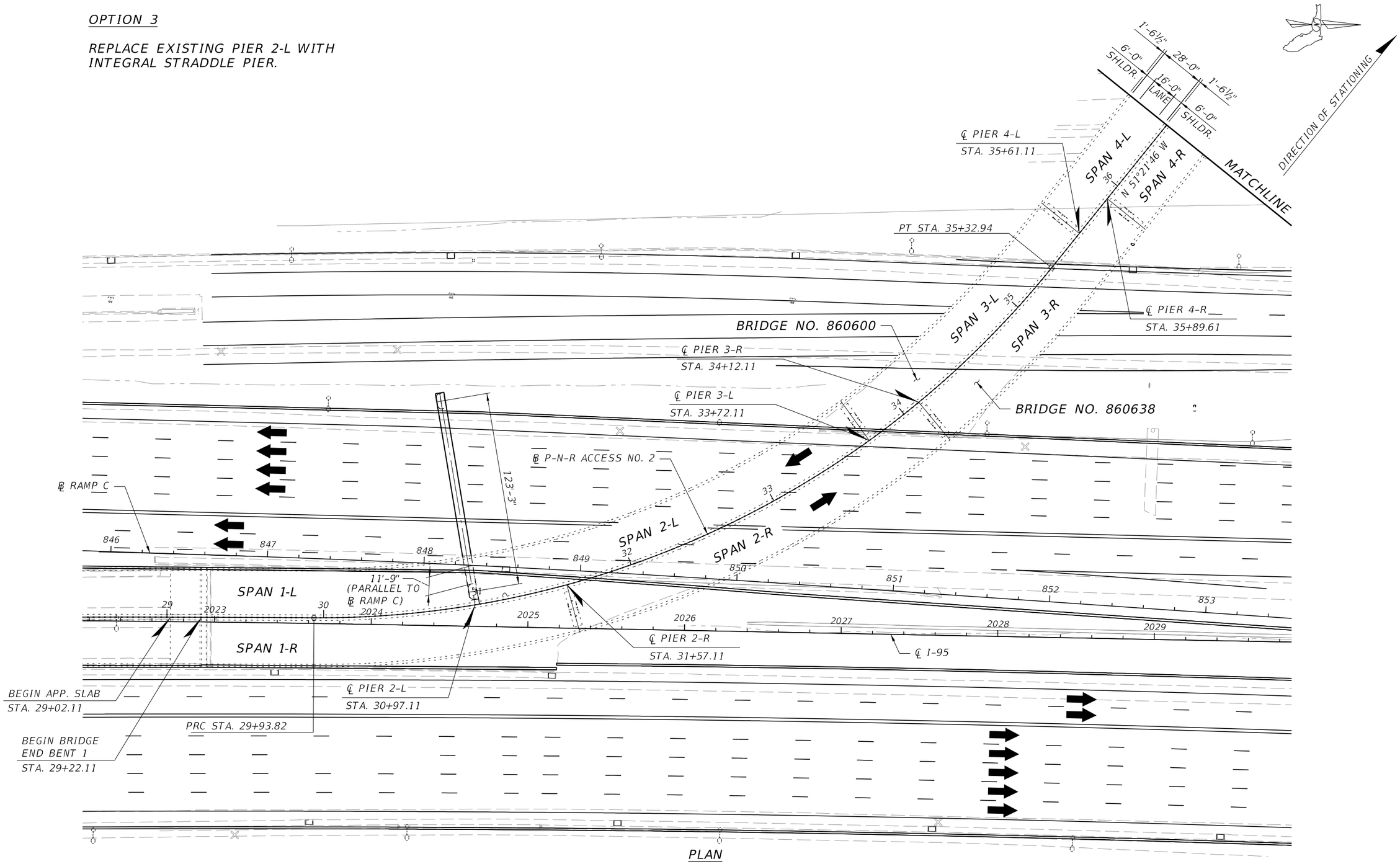
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SHEET NO.: B6-2

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OPTION 3

REPLACE EXISTING PIER 2-L WITH INTEGRAL STRADDLE PIER.



PLAN

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P.E. LICENSE NUMBER 41875
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3250 West Commercial Blvd, Suite 100
Fort Lauderdale, FL 33309-3459
CERTIFICATE OF AUTHORIZATION 4213

DRAWN BY:	CHECKED BY:	DESIGNED BY:	CHECKED BY:
TC	JJC	JJC	JGD

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9	BROWARD	435512-1-22-02

SHEET TITLE: PLAN - OPTION 3 (1 OF 2)

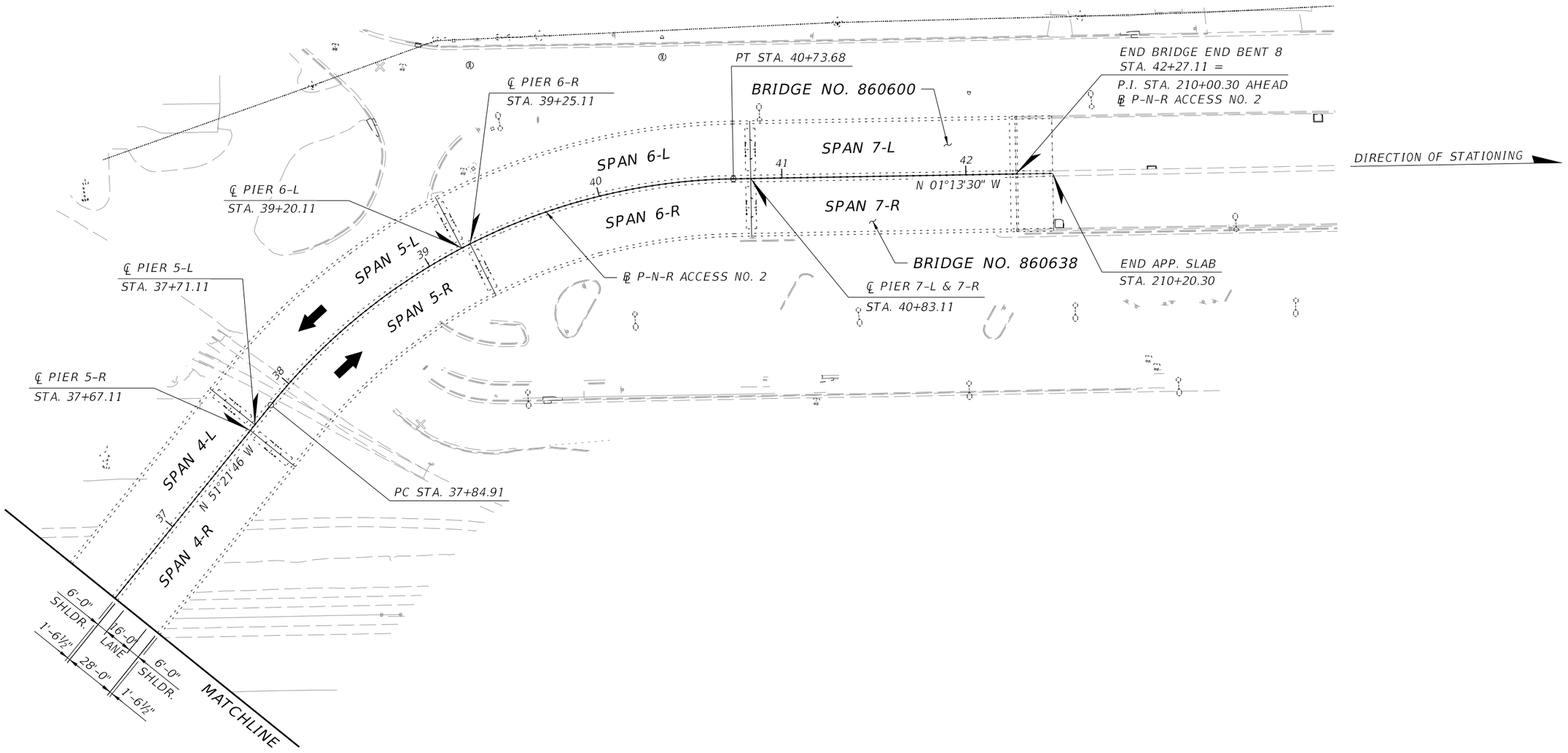
REF. DWG. NO.:

PROJECT NAME: SR-9/I-95 @ SR-842/BROWARD BOULEVARD INTERCHANGE IMPROVEMENTS

SHEET NO.: B6-3

OPTION 3

REPLACE EXISTING PIER 2-L WITH INTEGRAL STRADDLE PIER.



PLAN

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REVISIONS					
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John Danielsen, P.E.
P.E. LICENSE NUMBER 41875
HDR Engineering, Inc.
3250 West Commercial Blvd, Suite 100
Fort Lauderdale, FL 33309-3459
CERTIFICATE OF AUTHORIZATION 4213

DRAWN BY:	CHECKED BY:	DESIGNED BY:	CHECKED BY:
TC	JJC	JJC	JGD

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9	BROWARD	435512-1-22-02

SHEET TITLE: PLAN - OPTION 3 (2 OF 2)

REF. DWG. NO.:

PROJECT NAME: SR-9/I-95 @ SR-842/BROWARD BOULEVARD INTERCHANGE IMPROVEMENTS

SHEET NO.: B6-4

Appendix B

Typical Section Package

STATE OF FLORIDA

DEPARTMENT OF TRANSPORTATION

TYPICAL SECTION PACKAGE

FINANCIAL PROJECT ID 435513-1-22-02

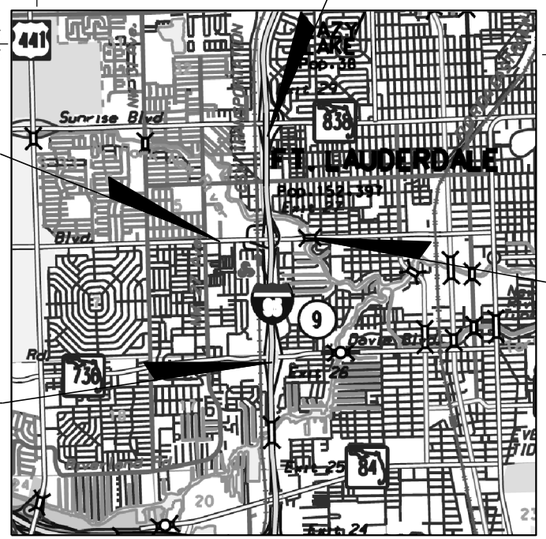
BROWARD COUNTY (86100)

STATE ROAD NO. 842/BROWARD BLVD. (86006000)

STATE ROAD NO. 9/I-95 (86070000)

END PROJECT

I-95 FROM TO SOUTH OF SUNRISE BLVD.



T-49-S
T-50-S

BEGIN PROJECT

BROWARD BLVD FROM WEST OF 24TH AVE.

END PROJECT

BROWARD BLVD TO EAST OF NW/SW 18TH AVE.

BEGIN PROJECT

I-95 FROM SOUTH OF DAVIE BLVD.

N

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TYPICAL SECTION CONCURRENCE

FDOT DISTRICT IV DESIGN ENGINEER	FDOT DISTRICT IV STRUCTURES DESIGN ENGINEER	FDOT DISTRICT IV PROJECT DEVELOPMENT MANAGER

DESIGN SPEED AND POSTED SPEED CONCURRENCE:

FDOT DISTRICT IV TRAFFIC OPERATIONS ENGINEER	FDOT DISTRICT IV DESIGN ENGINEER

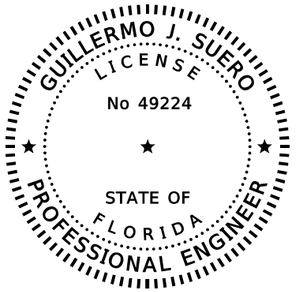
CONTEXT CLASSIFICATION CONCURRENCE:

FDOT DISTRICT BICYCLE/PEDESTRIAN COORDINATOR

SHEET NO.

1

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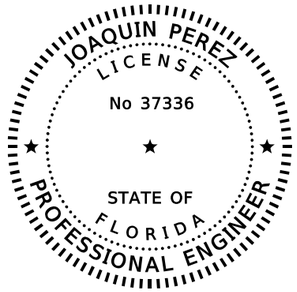
ON THE DATE ADJECENT TO THE SEAL

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED. THE SIGNATURE MUST BE VERIFIED IN THE ELECTRONIC DOCUMENTS.

HDR ENGINEERING, INC.
3250 W. COMMERCIAL BLVD, SUITE 100
FT. LAUDERDALE, FLORIDA 33309
CERTIFICATE OF AUTHORIZATION: 4213
GUILLERMO J. SUERO, P.E. NO. 49224

THE ABOVE NAMED PROFESSIONAL ENGINEER SHALL BE RESPONSIBLE FOR THE FOLLOWING SHEETS IN ACCORDANCE WITH RULE 61G15-23.004, F.A.C.

SHEET NO.	*SHEET DESCRIPTION*
1	*KEY SHEET*
2	*SIGNATURE SHEET*
5	*TYPICAL SECTION No. 3*
6	*TYPICAL SECTION No. 4*
7	*TYPICAL SECTION No. 5*
8	*TYPICAL SECTION No. 6*
9	*TYPICAL SECTION No. 7*



THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY:

ON THE DATE ADJECENT TO THE SEAL

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BOLTON PEREZ & ASSOCIATES
7205 CORPORATE CENTER DRIVE, SUITE 201
MIAMI, FLORIDA 33126
CERTIFICATE OF AUTHORIZATION: 7904
JOAQUIN PEREZ, P.E. NO. 37336

THE ABOVE NAMED PROFESSIONAL ENGINEER SHALL BE RESPONSIBLE FOR THE FOLLOWING SHEETS IN ACCORDANCE WITH RULE 61G15-23.004, F.A.C.

SHEET NO.	*SHEET DESCRIPTION*
2	*SIGNATURE SHEET*
3	*TYPICAL SECTION No. 1*
4	*TYPICAL SECTION No. 2*

FINANCIAL PROJECT ID	*SHEET NO.*
435513-1-22-02	*2*

6/25/2019 *4:33:15 PM*

PROJECT CONTROLS

CONTEXT CLASSIFICATION

() C1 : NATURAL
() C2 : RURAL
() C2T : RURAL TOWN
() C3R : SUBURBAN RES.
() C3C : SUBURBAN COMM.
(X) C4 : URBAN GENERAL
() C5 : URBAN CENTER
() C6 : URBAN CORE
() N/A : L.A. FACILITY

FUNCTIONAL CLASSIFICATION

() INTERSTATE
() FREEWAY/EXPWY.
(X) PRINCIPAL ARTERIAL
() MINOR ARTERIAL
() MAJOR COLLECTOR
() MINOR COLLECTOR
() LOCAL

HIGHWAY SYSTEM

() NATIONAL HIGHWAY SYSTEM
() STRATEGIC INTERMODAL SYSTEM
(X) STATE HIGHWAY SYSTEM
() OFF-STATE HIGHWAY SYSTEM

ACCESS CLASSIFICATION

() 1 - FREEWAY
() 2 - RESTRICTIVE w/Service Roads
() 3 - RESTRICTIVE w/660 ft. Connection Spacing
() 4 - NON-RESTRICTIVE w/2640 ft. Signal Spacing
(X) 5 - RESTRICTIVE w/440 ft. Connection Spacing
() 6 - NON-RESTRICTIVE w/1320 ft. Signal Spacing
() 7 - BOTH MEDIAN TYPES

CRITERIA

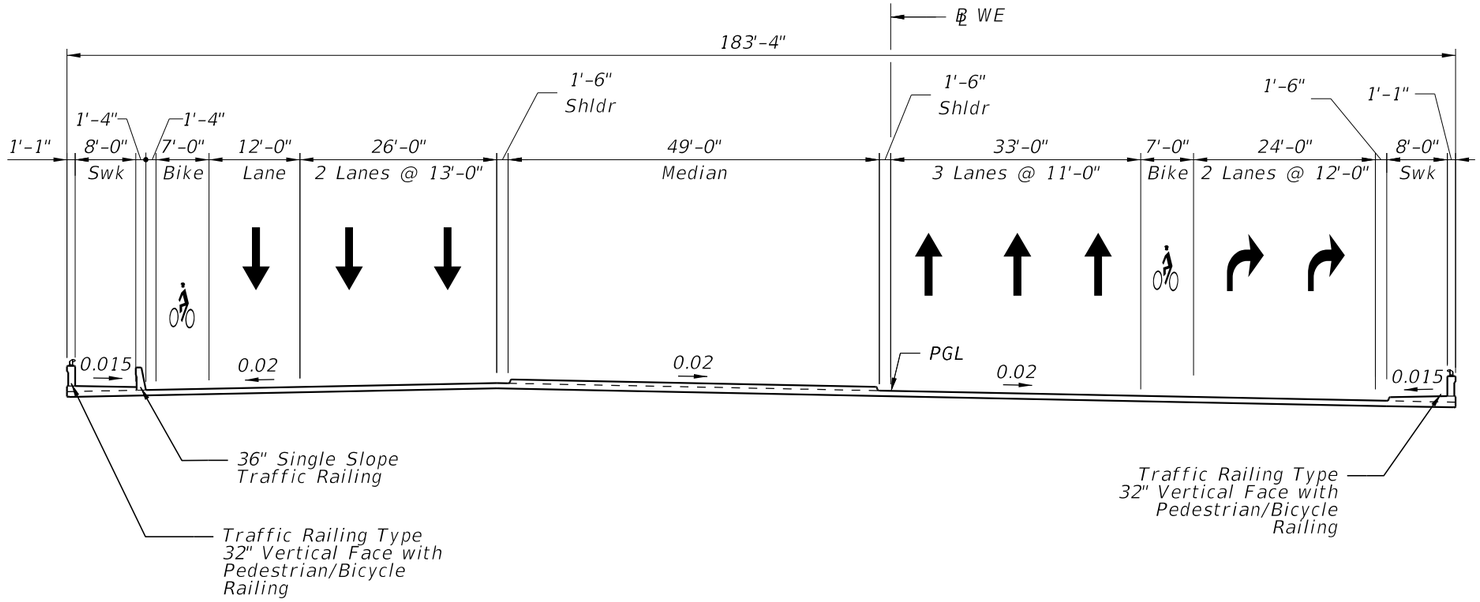
(X) NEW CONSTRUCTION / RECONSTRUCTION
() RESURFACING (LA FACILITIES)
() RRR (ARTERIALS & COLLECTORS)

POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:

EXCEPTIONS:
NONE

VARIATIONS:
NONE

TYPICAL SECTION No. 1



BROWARD BLVD. OVER SOUTH FLORIDA RAIL CORRIDOR

STA. 531+85.12 TO STA. 535+83.64

TRAFFIC DATA

CURRENT YEAR = 2019 AADT = 45,000
ESTIMATED OPENING YEAR = 2028 AADT = 47,000
ESTIMATED DESIGN YEAR = 2040 AADT = 50,600
K = 9 % D = 54.1% T = 4.1% (24 HOUR)
DESIGN HOUR T = 2 %
DESIGN SPEED = 45 MPH

FINANCIAL PROJECT ID	SHEET NO.
435513-1-22-02	3

7/22/2019 4:34:25 PM

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PROJECT CONTROLS

CONTEXT CLASSIFICATION

()	C1 : NATURAL	()	C3C : SUBURBAN COMM.
()	C2 : RURAL	(X)	C4 : URBAN GENERAL
()	C2T : RURAL TOWN	()	C5 : URBAN CENTER
()	C3R : SUBURBAN RES.	()	C6 : URBAN CORE
()	N/A : L.A. FACILITY		

FUNCTIONAL CLASSIFICATION

()	INTERSTATE	()	MAJOR COLLECTOR
()	FREEWAY/EXPWY.	()	MINOR COLLECTOR
(X)	PRINCIPAL ARTERIAL	()	LOCAL
()	MINOR ARTERIAL		

HIGHWAY SYSTEM

() NATIONAL HIGHWAY SYSTEM
() STRATEGIC INTERMODAL SYSTEM
(X) STATE HIGHWAY SYSTEM
() OFF-STATE HIGHWAY SYSTEM

ACCESS CLASSIFICATION

() 1 - FREEWAY
() 2 - RESTRICTIVE w/Service Roads
() 3 - RESTRICTIVE w/660 ft. Connection Spacing
() 4 - NON-RESTRICTIVE w/2640 ft. Signal Spacing
(X) 5 - RESTRICTIVE w/440 ft. Connection Spacing
() 6 - NON-RESTRICTIVE w/1320 ft. Signal Spacing
() 7 - BOTH MEDIAN TYPES

CRITERIA

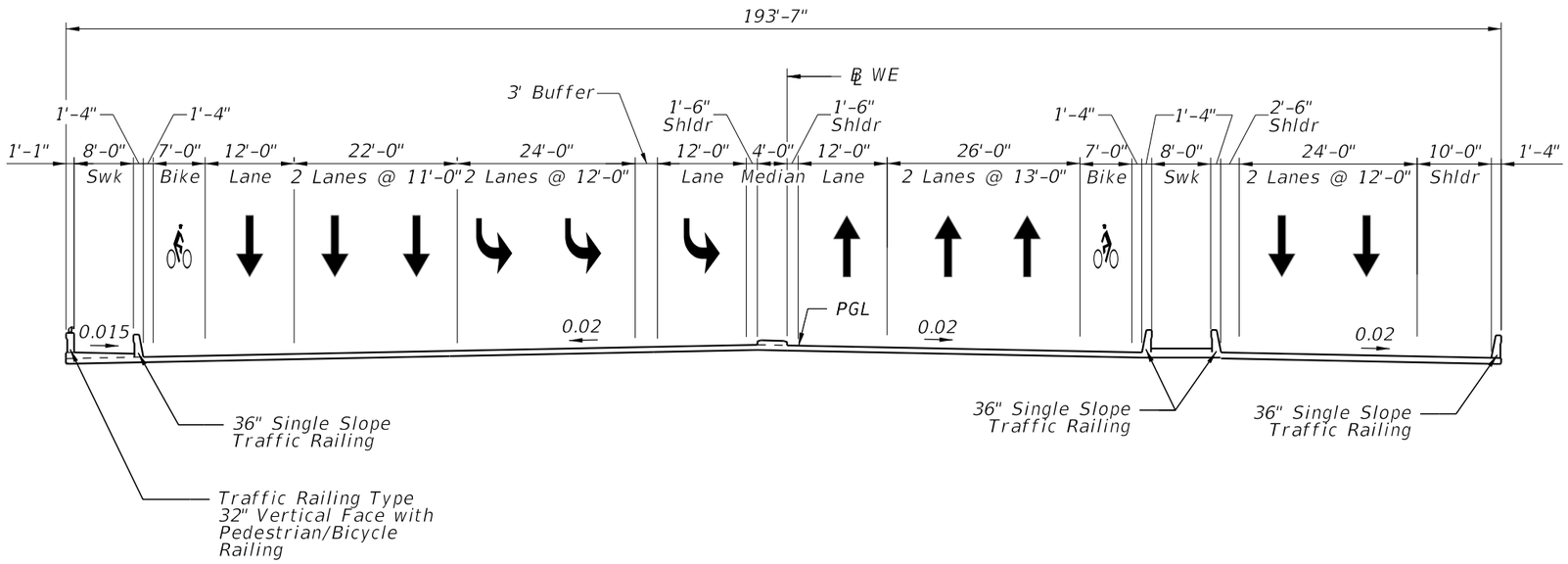
(X) NEW CONSTRUCTION / RECONSTRUCTION
() RESURFACING (LA FACILITIES)
() RRR (ARTERIALS & COLLECTORS)

POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:

EXCEPTIONS:
NONE

VARIATIONS:
RAMP SHOULDER WIDTH FOR DISPLACED NB TO WB RAMP WHERE IT CROSSES I-95

TYPICAL SECTION No. 2



BROWARD BLVD. OVER I-95

STA. 537+50.18 TO STA. 540+26.54

TRAFFIC DATA

CURRENT YEAR = 2019 AADT = 49,000
ESTIMATED OPENING YEAR = 2028 AADT = 52,000
ESTIMATED DESIGN YEAR = 2040 AADT = 55,000
K = 9 % D = 54.1% T = 4.1% (24 HOUR)
DESIGN HOUR T = 2 %
DESIGN SPEED = 45 MPH

FINANCIAL PROJECT ID	SHEET NO.
435513-1-22-02	4

7/22/2019 4:57:09 PM

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PROJECT CONTROLS

CONTEXT CLASSIFICATION

()	C1 : NATURAL	()	C3C : SUBURBAN COMM.
()	C2 : RURAL	(X)	C4 : URBAN GENERAL
()	C2T : RURAL TOWN	()	C5 : URBAN CENTER
()	C3R : SUBURBAN RES.	()	C6 : URBAN CORE
()	N/A : L.A. FACILITY		

FUNCTIONAL CLASSIFICATION

()	INTERSTATE	()	MAJOR COLLECTOR
()	FREEWAY/EXPWY.	()	MINOR COLLECTOR
(X)	PRINCIPAL ARTERIAL	()	LOCAL
()	MINOR ARTERIAL		

HIGHWAY SYSTEM

() NATIONAL HIGHWAY SYSTEM
() STRATEGIC INTERMODAL SYSTEM
(X) STATE HIGHWAY SYSTEM
() OFF-STATE HIGHWAY SYSTEM

ACCESS CLASSIFICATION

() 1 - FREEWAY
() 2 - RESTRICTIVE w/Service Roads
() 3 - RESTRICTIVE w/660 ft. Connection Spacing
() 4 - NON-RESTRICTIVE w/2640 ft. Signal Spacing
(X) 5 - RESTRICTIVE w/440 ft. Connection Spacing
() 6 - NON-RESTRICTIVE w/1320 ft. Signal Spacing
() 7 - BOTH MEDIAN TYPES

CRITERIA

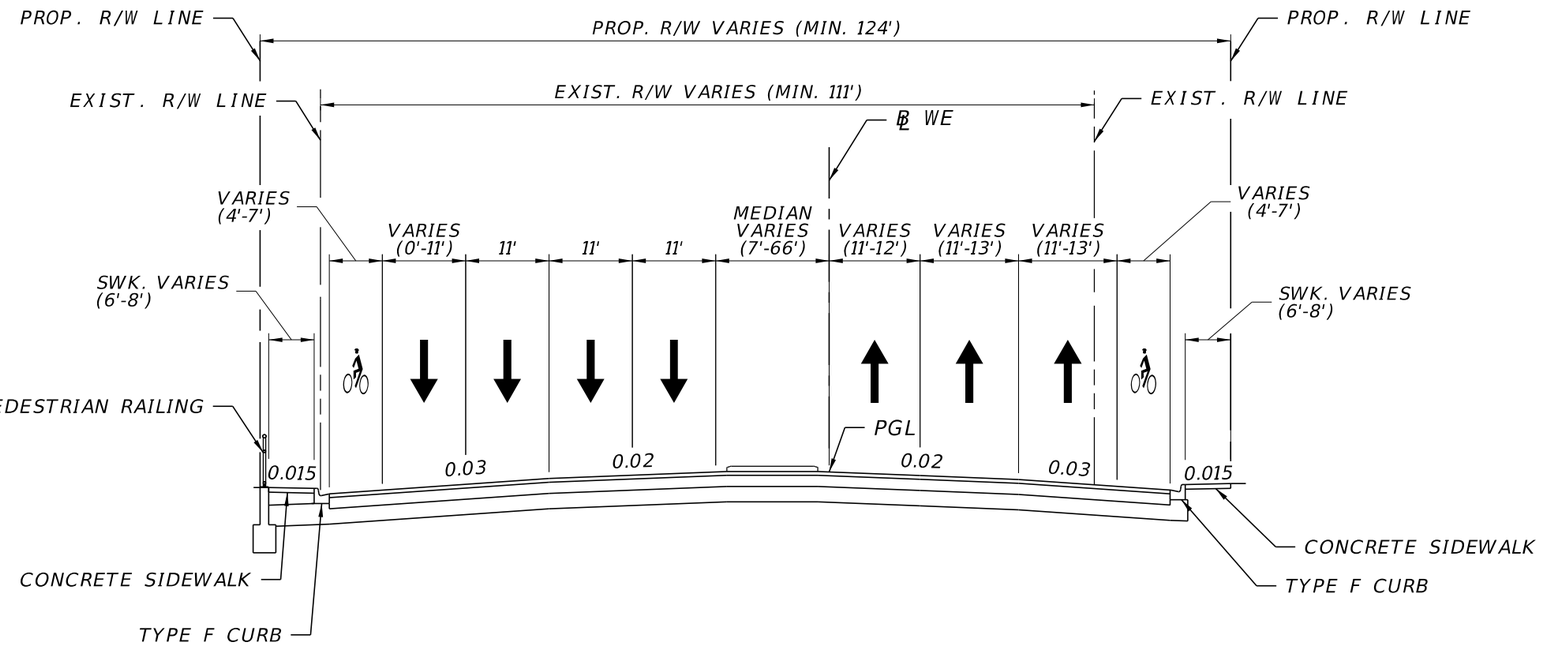
(X) NEW CONSTRUCTION / RECONSTRUCTION
() RESURFACING (LA FACILITIES)
() RRR (ARTERIALS & COLLECTORS)

POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:

EXCEPTIONS:
NONE

VARIATIONS:
1. HORIZONTAL CURVE LENGTH
2. BICYCLE LANE WIDTH
3. BORDER WIDTH
4. MEDIAN WIDTH

TYPICAL SECTION No. 3



BROWARD BLVD. EAST OF I-95
STA. 540+26.54 TO STA. 552+74.96

TRAFFIC DATA

CURRENT YEAR = 2019 AADT = 49,000
ESTIMATED OPENING YEAR = 2028 AADT = 52,000
ESTIMATED DESIGN YEAR = 2040 AADT = 55,000
K = 9 % D = 54.1% T = 4.1% (24 HOUR)
DESIGN HOUR T = 2 %
DESIGN SPEED = 45 MPH

FINANCIAL PROJECT ID	SHEET NO.
435513-1-22-02	5

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PROJECT CONTROLS

CONTEXT CLASSIFICATION

()	C1 : NATURAL	()	C3C : SUBURBAN COMM.
()	C2 : RURAL	(X)	C4 : URBAN GENERAL
()	C2T : RURAL TOWN	()	C5 : URBAN CENTER
()	C3R : SUBURBAN RES.	()	C6 : URBAN CORE
()	N/A : L.A. FACILITY		

FUNCTIONAL CLASSIFICATION

()	INTERSTATE	()	MAJOR COLLECTOR
()	FREEWAY/EXPWY.	()	MINOR COLLECTOR
()	PRINCIPAL ARTERIAL	(X)	LOCAL
()	MINOR ARTERIAL		

HIGHWAY SYSTEM

()	NATIONAL HIGHWAY SYSTEM
()	STRATEGIC INTERMODAL SYSTEM
()	STATE HIGHWAY SYSTEM
(X)	OFF-STATE HIGHWAY SYSTEM

ACCESS CLASSIFICATION

()	1 - FREEWAY
()	2 - RESTRICTIVE w/Service Roads
()	3 - RESTRICTIVE w/660 ft. Connection Spacing
()	4 - NON-RESTRICTIVE w/2640 ft. Signal Spacing
(X)	5 - RESTRICTIVE w/440 ft. Connection Spacing
()	6 - NON-RESTRICTIVE w/1320 ft. Signal Spacing
()	7 - BOTH MEDIAN TYPES

CRITERIA

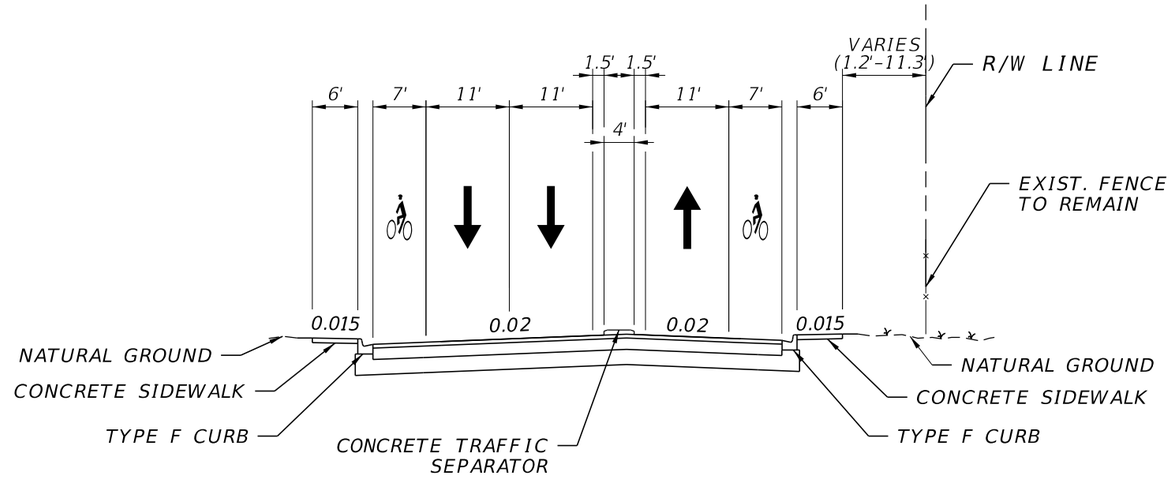
(X)	NEW CONSTRUCTION / RECONSTRUCTION
()	RESURFACING (LA FACILITIES)
()	RRR (ARTERIALS & COLLECTORS)

POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:

EXCEPTIONS:
NONE

VARIATIONS:
NONE

TYPICAL SECTION No. 4



SW 1ST STREET

TRAFFIC DATA

CURRENT YEAR = 2019 AADT = 3,000
ESTIMATED OPENING YEAR = 2028 AADT = 5,300
ESTIMATED DESIGN YEAR = 2040 AADT = 5,900
K = 9 % D = 54.1% T = 6.0% (24 HOUR)
DESIGN HOUR T = 3 %
DESIGN SPEED = 20 MPH

FINANCIAL PROJECT ID	SHEET NO.
435513-1-22-02	6

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PROJECT CONTROLS

CONTEXT CLASSIFICATION

() C1 : NATURAL
() C2 : RURAL
() C2T : RURAL TOWN
() C3R : SUBURBAN RES.
() C3C : SUBURBAN COMM.
() C4 : URBAN GENERAL
() C5 : URBAN CENTER
() C6 : URBAN CORE
(X) N/A : L.A. FACILITY

FUNCTIONAL CLASSIFICATION

(X) INTERSTATE
() FREEWAY/EXPWY.
() PRINCIPAL ARTERIAL
() MINOR ARTERIAL
() MAJOR COLLECTOR
() MINOR COLLECTOR
() LOCAL

HIGHWAY SYSTEM

(X) NATIONAL HIGHWAY SYSTEM
(X) STRATEGIC INTERMODAL SYSTEM
(X) STATE HIGHWAY SYSTEM
() OFF-STATE HIGHWAY SYSTEM

ACCESS CLASSIFICATION

(X) 1 - FREEWAY
() 2 - RESTRICTIVE w/Service Roads
() 3 - RESTRICTIVE w/660 ft. Connection Spacing
() 4 - NON-RESTRICTIVE w/2640 ft. Signal Spacing
() 5 - RESTRICTIVE w/440 ft. Connection Spacing
() 6 - NON-RESTRICTIVE w/1320 ft. Signal Spacing
() 7 - BOTH MEDIAN TYPES

CRITERIA

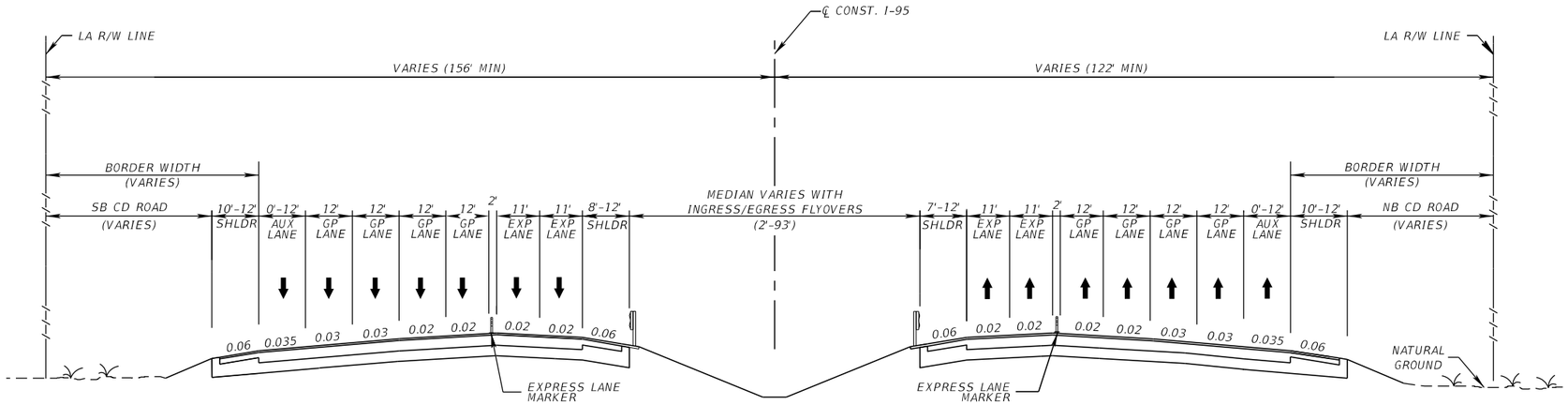
(X) NEW CONSTRUCTION / RECONSTRUCTION
() RESURFACING (LA FACILITIES)
() RRR (ARTERIALS & COLLECTORS)

POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:

EXCEPTIONS:
1. LANE WIDTH (EXPRESS LANES)
2. SHOULDER WIDTH

VARIATIONS:
1. BORDER WIDTH

TYPICAL SECTION No. 5



I-95

℄ CONST. I-95 NB STA. 1975+94.06 TO STA. 2094+83.39

℄ CONST. I-95 SB STA. 2011+66.77 TO STA. 2094+83.39

TRAFFIC DATA

CURRENT YEAR = 2019 AADT = 297,000
ESTIMATED OPENING YEAR = 2028 AADT = 306,000
ESTIMATED DESIGN YEAR = 2040 AADT = 340,000
K = 9 % D = 58.5% T = 7.5% (24 HOUR)
DESIGN HOUR T = 7.5%
DESIGN SPEED = 65 MPH

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FINANCIAL PROJECT ID	SHEET NO.
435513-1-22-02	7

PROJECT CONTROLS

CONTEXT CLASSIFICATION

() C1 : NATURAL
() C2 : RURAL
() C2T : RURAL TOWN
() C3R : SUBURBAN RES.
() C3C : SUBURBAN COMM.
() C4 : URBAN GENERAL
() C5 : URBAN CENTER
() C6 : URBAN CORE
(X) N/A : L.A. FACILITY

FUNCTIONAL CLASSIFICATION

(X) INTERSTATE
() FREEWAY/EXPWY.
() PRINCIPAL ARTERIAL
() MINOR ARTERIAL
() MAJOR COLLECTOR
() MINOR COLLECTOR
() LOCAL

HIGHWAY SYSTEM

(X) NATIONAL HIGHWAY SYSTEM
(X) STRATEGIC INTERMODAL SYSTEM
(X) STATE HIGHWAY SYSTEM
() OFF-STATE HIGHWAY SYSTEM

ACCESS CLASSIFICATION

(X) 1 - FREEWAY
() 2 - RESTRICTIVE w/Service Roads
() 3 - RESTRICTIVE w/660 ft. Connection Spacing
() 4 - NON-RESTRICTIVE w/2640 ft. Signal Spacing
() 5 - RESTRICTIVE w/440 ft. Connection Spacing
() 6 - NON-RESTRICTIVE w/1320 ft. Signal Spacing
() 7 - BOTH MEDIAN TYPES

CRITERIA

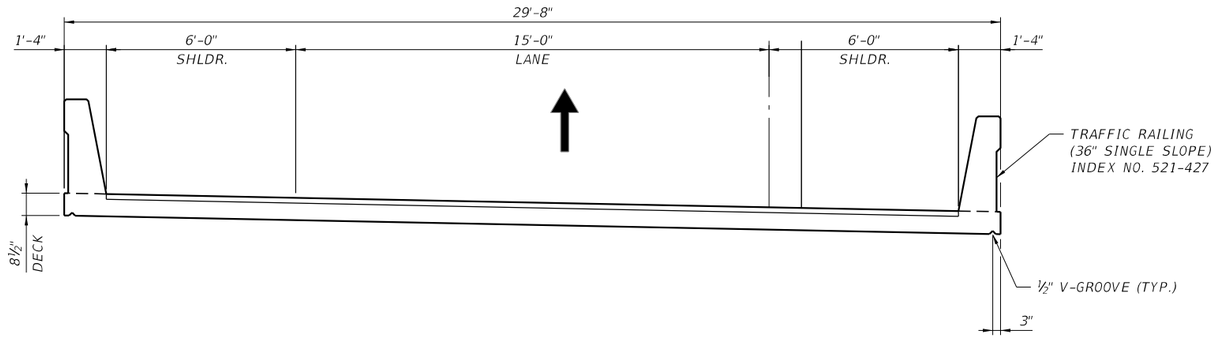
(X) NEW CONSTRUCTION / RECONSTRUCTION
() RESURFACING (LA FACILITIES)
() RRR (ARTERIALS & COLLECTORS)

POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:

EXCEPTIONS:
NONE

VARIATIONS:
HORIZONTAL CURVE LENGTH

TYPICAL SECTION No. 6



TYPICAL SECTION

RAMP B
RAMP C
RAMP D
RAMP E

TRAFFIC DATA RAMP B

CURRENT YEAR = 2019 AADT = N/A
ESTIMATED OPENING YEAR = 2028 AADT = 4,300
ESTIMATED DESIGN YEAR = 2040 AADT = 4,400
K = 9 % D = 100%
DESIGN SPEED = 45 MPH

TRAFFIC DATA RAMP C

CURRENT YEAR = 2019 AADT = N/A
ESTIMATED OPENING YEAR = 2028 AADT = 2,800
ESTIMATED DESIGN YEAR = 2040 AADT = 7,400
K = 9 % D = 100%
DESIGN SPEED = 25 MPH

TRAFFIC DATA RAMP D

CURRENT YEAR = 2019 AADT = N/A
ESTIMATED OPENING YEAR = 2028 AADT = 5,200
ESTIMATED DESIGN YEAR = 2040 AADT = 6,800
K = 9 % D = 100%
DESIGN SPEED = 25 MPH

TRAFFIC DATA RAMP E

CURRENT YEAR = 2019 AADT = N/A
ESTIMATED OPENING YEAR = 2028 AADT = 4,200
ESTIMATED DESIGN YEAR = 2040 AADT = 5,700
K = 9 % D = 100%
DESIGN SPEED = 25 MPH

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FINANCIAL PROJECT ID	SHEET NO.
435513-1-22-02	8

PROJECT CONTROLS

CONTEXT CLASSIFICATION

()	C1 : NATURAL	()	C3C : SUBURBAN COMM.
()	C2 : RURAL	()	C4 : URBAN GENERAL
()	C2T : RURAL TOWN	()	C5 : URBAN CENTER
()	C3R : SUBURBAN RES.	()	C6 : URBAN CORE
(X)	N/A : L.A. FACILITY		

FUNCTIONAL CLASSIFICATION

(X)	INTERSTATE	()	MAJOR COLLECTOR
()	FREEWAY/EXPWY.	()	MINOR COLLECTOR
()	PRINCIPAL ARTERIAL	()	LOCAL
()	MINOR ARTERIAL		

HIGHWAY SYSTEM

()	NATIONAL HIGHWAY SYSTEM
()	STRATEGIC INTERMODAL SYSTEM
(X)	STATE HIGHWAY SYSTEM
()	OFF-STATE HIGHWAY SYSTEM

ACCESS CLASSIFICATION

(X)	1 - FREEWAY
()	2 - RESTRICTIVE w/Service Roads
()	3 - RESTRICTIVE w/660 ft. Connection Spacing
()	4 - NON-RESTRICTIVE w/2640 ft. Signal Spacing
()	5 - RESTRICTIVE w/440 ft. Connection Spacing
()	6 - NON-RESTRICTIVE w/1320 ft. Signal Spacing
()	7 - BOTH MEDIAN TYPES

CRITERIA

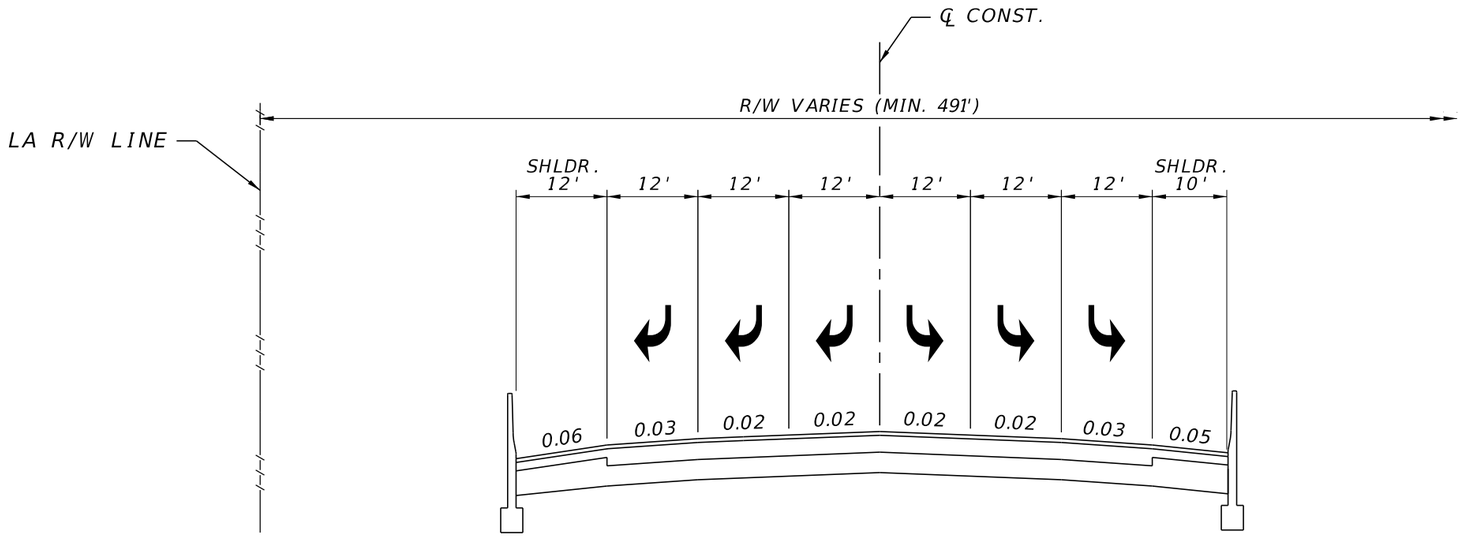
(X)	NEW CONSTRUCTION / RECONSTRUCTION
()	RESURFACING (LA FACILITIES)
()	RRR (ARTERIALS & COLLECTORS)

POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:

EXCEPTIONS:
NONE

VARIATIONS:
NONE

TYPICAL SECTION No. 7



SB I-95 EXIT RAMP

TRAFFIC DATA

CURRENT YEAR = 2019 AADT = 19,000
ESTIMATED OPENING YEAR = 2028 AADT = 20,000
ESTIMATED DESIGN YEAR = 2040 AADT = 21,400
K = 9 % D = 100 % T = 7.5% (24 HOUR)
DESIGN HOUR T = 3.8%
DESIGN SPEED = 45 MPH

FINANCIAL PROJECT ID	SHEET NO.
435513-1-22-02	9

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Appendix C

Long Range Estimates

Date: 5/8/2019 2:43:13 PM

FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: 435513-1-52-01 **Letting Date:** 08/2025

Description: SR-9/I-95 @ SR-842/BROWARD BOULEVARD

District: 04 **County:** 86 BROWARD **Market Area:** 12 **Units:** English
Contract Class: 1 **Lump Sum Project:** N **Design/Build:** N **Project Length:** 0.946 MI

Project Manager: SONNETT

Version 26 Project Grand Total **$136,087,265.75**
Description: 2019 LRE Update

Sequence: 1 NDU - New Construction, Divided, Urban **Net Length:** 0.413 MI
2,180 LF

Description: Broward Boulevard - 6 lanes Urban Divided Arterial Roadway

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	75.00 / 75.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.410
Top of Structural Course For Begin Section	105.00
Top of Structural Course For End Section	105.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	0 to 1 / 0 to 1
Median Shoulder Cross Slope L/R	4.00 % / 4.00 %
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	7.51 AC	$12,200.00	$91,622.00
120-6	EMBANKMENT	55,574.42 CY	$25.94	$1,441,600.45
	Earthwork Component Total			$1,533,222.45

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	6
Roadway Pavement Width L/R	40.00 / 40.00
Structural Spread Rate	330
Friction Course Spread Rate	110

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount

160-4	TYPE B STABILIZATION	21,878.64 SY	$5.91	$129,302.76
285-709	OPTIONAL BASE,BASE GROUP 09	19,378.77 SY	$23.34	$452,300.49
334-1-53	SUPERPAVE ASPH CONC, TRAF C, PG76-22	3,197.50 TN	$153.40	$490,496.50
337-7-82	ASPH CONC FC,TRAFFIC C,FC-9.5,PG 76-22	1,065.83 TN	$165.76	$176,671.98

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	7,175.90 SY	$5.91	$42,409.57
	Comment: Widening areas: west of 22nd Ave (EB and WB), east of I-94 and east of 18th ave (EB and WB)			
285-709	OPTIONAL BASE,BASE GROUP 09	7,175.90 SY	$23.34	$167,485.51
	Comment: Widening areas: west of 22nd Ave (EB and WB), east/west of 18th ave (WB)			
327-70-5	MILLING EXIST ASPH PAVT, 2" AVG DEPTH	23,882.10 SY	$5.31	$126,813.95
	Comment: Milling and resurfacing includes limits from NW 24th Ave (east of intersection) to NW 22nd Ave (east side) and from NW 18th ave Intersection (west of intersection up to approx. 360ft east of 18th ave)			
334-1-53	SUPERPAVE ASPH CONC, TRAF C, PG76-22	1,890.72 TN	$153.40	$290,036.45
	Comment: includes 1" SP for milling and resurfacing areas and 3" for widening areas west of 22nd Ave (EB and WB), and east of 18th ave (WB) and right and left turn lanes.			
337-7-82	ASPH CONC FC,TRAFFIC C,FC-9.5,PG 76-22	1,505.92 TN	$165.76	$249,621.30
	Comment: includes 1" SP for milling and resurfacing areas and 1" for widening areas west of 22nd Ave (EB and WB), and east of 18th ave (WB), and right and left turn lanes			
706-3	RETRO-REFLECTIVE/RAISED PAVEMENT MARKERS	829.00 EA	$4.39	$3,639.31
	Comment: RPMs for milling and resurfacing areas			
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	4.47 GM	$893.69	$3,994.79
	Comment: Includes milling and resurfacing areas and additional bike lane stripe throughout all roadway component limits			
710-11-102	PAINTED PAVT MARK,STD,WHITE,SOLID,8"	0.13 GM	$1,052.27	$136.80
	Comment: Island markings			
710-11-123	PAINTED PAVT MARK,STD,WHITE,SOLID, 12"	3,698.50 LF	$0.53	$1,960.21
	Comment: Includes all crosswalks except for those on bridges			
710-11-124	PAINTED PAVT MARK,STD,WHITE,SOLID, 18"	563.40 LF	$0.90	$507.06
	Comment: Chevron Markings east of 18th Ave			
710-11-125	PAINTED PAVT MARK,STD,WHITE,SOLID,24"	1,953.50 LF	$1.10	$2,148.85
	Comment: Includes all crosswalks except for those on bridges			
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	7.45 GM	$378.87	$2,822.58

	Comment: Includes milling and resurfacing areas			
710-11-141	PAINTED PAVT MARK,STD,WH,DOT GUIDE, 6"	2.42 GM	$375.41	$908.49
	Comment: For bike lane at turn lane tapers			
710-11-201	PAINTED PAVT MARK,STD,YELLOW,SOLID,6"	1.09 GM	$858.67	$935.95
	Comment: Inside pavement edge line includes new construction and milling and resurfacing lengths			
711-11-123	THERMOPLASTIC, STD, WHITE, SOLID, 12"	3,698.50 LF	$1.80	$6,657.30
	Comment: Includes all crosswalks and stop bars except for those on bridges			
711-11-124	THERMOPLASTIC, STD, WHITE, SOLID, 18"	563.40 LF	$2.59	$1,459.21
	Comment: Chevron Markings east of 18th Ave			
711-11-125	THERMOPLASTIC, STD, WHITE, SOLID, 24"	1,953.50 LF	$3.30	$6,446.55
	Comment: Includes all crosswalks and stop bars except for those on bridges			
711-11-141	THERMOPLASTIC, STD, WHITE, DOT GUIDE, 6"	2.42 GM	$1,325.91	$3,208.70
	Comment: For bike lane at turn lane tapers			
711-11-160	THERMOPLASTIC, STD, WHITE, MESSAGE	24.00 EA	$100.13	$2,403.12
	Comment: Bus Only messages at 22nd Ave and Bike lane markings			
711-11-170	THERMOPLASTIC, STD, WHITE, ARROW	34.00 EA	$55.60	$1,890.40
	Comment: Right/Left turn arrows			
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	4.47 GM	$3,888.31	$17,380.75
	Comment: Includes milling and resurfacing areas and additional bike lane stripe throughout all roadway component limits			
711-16-102	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 8"	0.13 GM	$4,788.75	$622.54
	Comment: Island markings			
711-16-131	THERMOPLASTIC, STD-OTH, WHITE, SKIP, 6"	7.45 GM	$1,300.13	$9,685.97
	Comment: includes milling and resurfacing length			
711-16-201	THERMOPLASTIC, STD-OTH,YELLOW, SOLID, 6"	1.09 GM	$3,797.52	$4,139.30
	Comment: Inside pavement edge line includes new construction and milling and resurfacing lengths			

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	2
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	4

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount

706-3	RETRO-REFLECTIVE/RAISED PAVEMENT MARKERS	279.00 EA	$4.39	$1,224.81
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.83 GM	$893.69	$741.76
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	1.65 GM	$378.87	$625.14
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	0.83 GM	$3,888.31	$3,227.30
711-16-131	THERMOPLASTIC, STD-OTH, WHITE, SKIP, 6"	1.65 GM	$1,300.13	$2,145.21
	Roadway Component Total			$2,204,050.61

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	13.25 / 13.25
Total Outside Shoulder Perf. Turf Width L/R	5.00 / 5.00
Sidewalk Width L/R	6.00 / 6.00

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	8,530.22	LF	$26.44	$225,539.02
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	4,379.00	SY	$40.50	$177,349.50
	Comment: sidewalk at widening areas				
570-1-2	PERFORMANCE TURF, SOD	562.00	SY	$3.76	$2,113.12
	Comment: sod at widening areas				

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	4,360.22	LF	$1.87	$8,153.61
104-11	FLOATING TURBIDITY BARRIER	103.22	LF	$15.21	$1,569.98
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	103.22	LF	$9.50	$980.59
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$2,083.20	$2,083.20
104-18	INLET PROTECTION SYSTEM	22.00	EA	$107.49	$2,364.78
107-1	LITTER REMOVAL	10.51	AC	$41.36	$434.69
107-2	MOWING	10.51	AC	$74.31	$781.00
	Shoulder Component Total				$421,369.49

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	50.00
Performance Turf Width	0.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount

520-1-10	CONCRETE CURB & GUTTER, TYPE F	4,360.22 LF	$26.44	$115,284.22
520-5-11	TRAF SEP CONC-TYPE I, 4' WIDE	101.00 LF	$44.08	$4,452.08

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
520-2-4	CONCRETE CURB, TYPE D	1,074.00 LF	$20.33	$21,834.42
	Comment: Curb inside transit platform			
520-70	CONCRETE TRAFFIC SEPARATOR, SP- VAR WIDT	2,131.20 SY	$85.75	$182,750.40
	Comment: Traffic separators east and west of I-95			
570-1-2	PERFORMANCE TURF, SOD	127.50 SY	$3.76	$479.40
	Median Component Total			$324,800.52

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
400-2-2	CONC CLASS II, ENDWALLS	7.43 CY	$2,500.00	$18,575.00
425-1-351	INLETS, CURB, TYPE P-5, <10'	15.00 EA	$6,422.69	$96,340.35
425-1-451	INLETS, CURB, TYPE J-5, <10'	5.00 EA	$8,291.67	$41,458.35
425-1-521	INLETS, DT BOT, TYPE C, <10'	3.00 EA	$5,333.93	$16,001.79
425-2-41	MANHOLES, P-7, <10'	3.00 EA	$5,967.25	$17,901.75
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	1,096.00 LF	$166.55	$182,538.80
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	104.00 LF	$245.14	$25,494.56
430-175-148	PIPE CULV, OPT MATL, ROUND, 48"S/CD	2,072.00 LF	$372.58	$771,985.76
570-1-1	PERFORMANCE TURF	125.52 SY	$3.13	$392.88
	Drainage Component Total			$1,170,689.24

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	10.00 AS	$353.51	$3,535.10
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	1.00 AS	$1,062.02	$1,062.02
700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	2.00 AS	$6,824.23	$13,648.46
700-2-16	MULTI- POST SIGN, F&I GM, 101-200 SF	6.00 AS	$9,349.80	$56,098.80

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
700-1-60	SINGLE POST SIGN, REMOVE	4.00 AS	$26.23	$104.92
700-2-60	MULTI- POST SIGN, REMOVE	1.00 AS	$545.32	$545.32
700-4-114	OH STATIC SIGN STR, F&I, C 41-50 FT	7.00 EA	$68,164.24	$477,149.68
700-4-610	OH STATIC SIGN STR, REMOVE, CANT	4.00 EA	$3,487.93	$13,951.72

700-4-640	OH STATIC SIGN STR, REMOVE, BRIDGE MOUNT	1.00 EA	$1,511.01	$1,511.01
700-8-115	FRONT ACC DYN MESS SIGN, F&I, MONO,51-	1.00 EA	$79,500.00	$79,500.00
700-8-500	FRONT ACC DYN MESS SIGN, RELOCATE	1.00 EA	$5,429.51	$5,429.51
700-10-122	DMS SUPPORT STRUCTURE, CANT, 21-30 FT	1.00 EA	$77,745.00	$77,745.00
	Signing Component Total			$730,281.54

SIGNALIZATIONS COMPONENT

Signalization 1

Description	Value
Type	4 Lane Mast Arm
Multiplier	1
Description	NW 22nd Ave

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	300.00 LF	$8.44	$2,532.00
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	200.00 LF	$18.97	$3,794.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	1.00 PI	$5,852.31	$5,852.31
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	16.00 EA	$647.64	$10,362.24
649-21-10	STEEL MAST ARM ASSEMBLY, F&I, 60'	1.00 EA	$40,041.33	$40,041.33
650-1-14	VEH TRAF SIGNAL,F&I ALUMINUM, 3 S 1 W	3.00 AS	$981.84	$2,945.52
653-1-11	PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY	6.00 AS	$665.33	$3,991.98
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	8.00 EA	$242.40	$1,939.20
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	1.00 AS	$28,006.82	$28,006.82
700-5-21	INTERNAL ILLUM SIGN, F&I OM, UP TO 12 SF	1.00 EA	$2,610.00	$2,610.00

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
641-2-11	PREST CNC POLE,F&I,TYP P-II,PEDESTAL	6.00 EA	$1,106.90	$6,641.40
653-1-12	PEDESTRIAN SIGNAL, F&I LED COUNT, 2 WAYS	1.00 AS	$1,131.82	$1,131.82
670-5-400	TRAF CNTL ASSEM, MODIFY	1.00 AS	$1,859.71	$1,859.71

Signalization 2

Description	Value
Type	Miscellaneous
Multiplier	1
Description	Broward Blvd @ I-95 Ingress/Egress Intersection

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	1,200.00	LF	$8.44	$10,128.00
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	100.00	LF	$18.97	$1,897.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	6.00	PI	$5,852.31	$35,113.86
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	6.00	EA	$647.64	$3,885.84
649-21-3	STEEL MAST ARM ASSEMBLY, F&I, 40'	2.00	EA	$35,636.85	$71,273.70
649-21-10	STEEL MAST ARM ASSEMBLY, F&I, 60'	3.00	EA	$40,041.33	$120,123.99
649-21-21	STEEL MAST ARM ASSEMBLY, F&I, 78'	1.00	EA	$54,926.33	$54,926.33
650-1-14	VEH TRAF SIGNAL,F&I ALUMINUM, 3 S 1 W	18.00	AS	$981.84	$17,673.12
653-1-11	PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY	6.00	AS	$665.33	$3,991.98
653-1-12	PEDESTRIAN SIGNAL, F&I LED COUNT, 2 WAYS	1.00	AS	$1,131.82	$1,131.82
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	7.00	EA	$242.40	$1,696.80
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	1.00	AS	$28,006.82	$28,006.82

Signalization 3

Description	Value
Type	6 Lane Mast Arm
Multiplier	1
Description	18th Ave

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	300.00	LF	$8.44	$2,532.00
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	200.00	LF	$18.97	$3,794.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	1.00	PI	$5,852.31	$5,852.31
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	6.00	EA	$647.64	$3,885.84
649-21-21	STEEL MAST ARM ASSEMBLY, F&I, 78'	1.00	EA	$54,926.33	$54,926.33
650-1-14	VEH TRAF SIGNAL,F&I ALUMINUM, 3 S 1 W	6.00	AS	$981.84	$5,891.04
653-1-11	PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY	6.00	AS	$665.33	$3,991.98
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	8.00	EA	$242.40	$1,939.20
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	1.00	AS	$28,006.82	$28,006.82
700-5-21	INTERNAL ILLUM SIGN, F&I OM, UP TO 12 SF	2.00	EA	$2,610.00	$5,220.00

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
649-21-1		1.00	EA	$28,742.38	$28,742.38

	STEEL MAST ARM ASSEMBLY, F&I, 30'			
670-5-400	TRAF CNTL ASSEM, MODIFY	1.00 AS	$1,859.71	$1,859.71
	Signalizations Component Total			$608,199.20

INTELLIGENT TRAFFIC SYSTEM (ITS) COMPONENT

Description of Work

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	2,500.00	LF	$8.44	$21,100.00
633-1-121	FIBER OPTIC CABLE, F&I, UG,2-12	2,500.00	LF	$3.57	$8,925.00
633-1-123	FIBER OPTIC CABLE, F&I, UG,49-96	2,500.00	LF	$3.34	$8,350.00
633-2-31	FIBER OPTIC CONNECTION, INSTALL, SPLICE	24.00	EA	$50.86	$1,220.64
633-3-11	FIBER OPTIC CONN HDWR, SPLICE ENCLOSURE	24.00	EA	$938.41	$22,521.84
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	12.00	EA	$647.64	$7,771.68
635-2-12	PULL & SPLICE BOX, F&I, 24" X 36"	12.00	EA	$1,303.14	$15,637.68
635-3-11	JUNCTION BOX, FURNISH & INSTALL, AERIAL	12.00	EA	$500.00	$6,000.00
682-1-111	ITS CCTV CAMERA, F&I, DOME ENCL-PRES.	4.00	EA	$7,180.53	$28,722.12
684-1-1	MANAGED FIELD ETHERNET SWITCH, F&I	12.00	EA	$3,671.24	$44,054.88
684-6-11	WIRELESS COMMUNICATION DEVICE, F&I, ETHE	4.00	EA	$4,216.21	$16,864.84
684-6-12	WIRELESS COMMUNICATION DEVICE, F&I, ETHE	6.00	EA	$5,343.57	$32,061.42
	Intelligent Traffic System (ITS) Component Total				$213,230.10

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
Spacing	MIN

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	2,280.96	LF	$8.44	$19,251.30
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	452.74	LF	$18.97	$8,588.48
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	11.00	EA	$647.64	$7,124.04
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	8,330.69	LF	$2.48	$20,660.11
715-4-13	LIGHT POLE COMPLETE, F&I-STD, 40'	11.00	EA	$6,064.29	$66,707.19
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	11.00	EA	$611.83	$6,730.13
	Subcomponent Total				$129,061.25

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
715-7-11	LOAD CENTER, F&I, SECONDARY VOLTAGE	1.00 EA	$11,396.80	$11,396.80
	Lighting Component Total			$140,458.05

BRIDGES COMPONENT

Bridge 002

Description	Value
Estimate Type	SF Estimate
Primary Estimate	YES
Length (LF)	276.08
Width (LF)	191.58
Type	Medium Level
Cost Factor	2.95
Structure No.	860569
Removal of Existing Structures area	33,151.74
Default Cost per SF	$65.00
Factored Cost per SF	$191.75
Final Cost per SF	**$200.30**
Basic Bridge Cost	**$10,141,927.18**
Description	BROWARD BLVD BRIDGE OVER I-95

Bridge Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-3	REMOVAL OF EXISTING STRUCTURES/BRIDGES	33,151.74 SF	$27.83	$922,612.92
400-2-10	CONC CLASS II, APPROACH SLABS	425.73 CY	$462.96	$197,095.96
415-1-9	REINF STEEL- APPROACH SLABS	74,502.75 LB	$1.02	$75,992.80

Bridge X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
515-2-111	PED/BICYCLE RAILING,NS, 42" TYPE 1	276.10 LF	$110.60	$30,536.66
521-5-13	CONC TRAF RAIL- BRIDGE, 36" SING SLOPE	1,091.31 LF	$136.03	$148,450.90
	Bridge 002 Total			$11,516,616.43

Bridge 001

Description	Value
Estimate Type	SF Estimate
Primary Estimate	YES
Length (LF)	398.50
Width (LF)	182.00
Type	Medium Level
Cost Factor	3.00
Structure No.	860257
Removal of Existing Structures area	29,848.27
Default Cost per SF	$65.00
Factored Cost per SF	$195.00
Final Cost per SF	**$200.49**

Basic Bridge Cost **$14,142,765.00**

Description BROWARD BLVD. BRIDGE FOR TRANSIT STATION AND OVER RR

Bridge Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-3	REMOVAL OF EXISTING STRUCTURES/BRIDGES	29,848.27 SF	$27.83	$830,677.35
400-2-10	CONC CLASS II, APPROACH SLABS	404.44 CY	$462.96	$187,239.54
415-1-9	REINF STEEL- APPROACH SLABS	70,777.00 LB	$1.02	$72,192.54

Bridge X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
515-2-111	PED/BICYCLE RAILING,NS, 42" TYPE 1	397.00 LF	$110.60	$43,908.20
521-5-4	CONC TRAF RAIL- BRG, 32" VERT FACE	417.66 LF	$98.29	$41,051.80
521-5-13	CONC TRAF RAIL- BRIDGE, 36" SING SLOPE	397.00 LF	$136.03	$54,003.91
	Bridge 001 Total			$15,371,838.34
	Bridges Component Total			$26,888,454.77

RETAINING WALLS COMPONENT

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
521-8-1	CONC TRAF RAIL BAR, JCT SLAB,32"F SHAPE	1,798.00 LF	$250.00	$449,500.00
	Comment: Ret. Wall 1 NW of Bridge 1 Ret. Wall 2 N of Broward Blvd between I-95 and 18 Ave Ret. Wall 3 E end of Bridge 002 Ret. Wall 4 SW End of Bridge 002 Ret. Wall 4 NW End of Bridge 002			

Retaining Wall 1

Description	Value
Length	393.00
Begin height	6.00
End Height	30.00
Multiplier	1

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
548-12	RET WALL SYSTEM, PERM, EX BARRIER	7,074.00 SF	$27.50	$194,535.00

Retaining Wall 2

Description	Value
Length	522.00
Begin height	2.00
End Height	20.00
Multiplier	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
548-12	RET WALL SYSTEM, PERM, EX BARRIER	5,742.00	SF	$27.50	$157,905.00

Retaining Wall 3

Description	Value
Length	184.33
Begin height	20.00
End Height	20.00
Multiplier	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
548-12	RET WALL SYSTEM, PERM, EX BARRIER	3,686.60	SF	$27.50	$101,381.50

Retaining Wall 4

Description	Value
Length	150.00
Begin height	15.00
End Height	15.00
Multiplier	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
548-12	RET WALL SYSTEM, PERM, EX BARRIER	2,250.00	SF	$27.50	$61,875.00

Retaining Wall 5

Description	Value
Length	150.00
Begin height	12.00
End Height	12.00
Multiplier	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
548-12	RET WALL SYSTEM, PERM, EX BARRIER	1,800.00	SF	$27.50	$49,500.00

Retaining Walls Component Total $1,014,696.50

Sequence 1 Total $35,249,452.47

Sequence: 2 NUU - New Construction, Undivided, Urban **Net Length:** 0.341 MI
1,800 LF

Description: NB General Purpose Exit to Broward Blvd (Ramp A)

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	20.00 / 20.00
Incidental Clearing and Grubbing Area	0.50
Alignment Number	1
Distance	0.294
Top of Structural Course For Begin Section	14.00
Top of Structural Course For End Section	35.00
Horizontal Elevation For Begin Section	14.00
Horizontal Elevation For End Section	30.00
Front Slope L/R	0 to 1 / 0 to 1
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	1.65 AC	$12,200.00	$20,130.00
110-1-1	CLEARING & GRUBBING	0.50 AC	$12,200.00	$6,100.00
120-6	EMBANKMENT	3,925.93 CY	$25.94	$101,838.62
	Earthwork Component Total			$128,068.62

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	1
Roadway Pavement Width L/R	15.00 / 0.00
Structural Spread Rate	550
Friction Course Spread Rate	80

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	3,515.91 SY	$5.91	$20,779.03
285-712	OPTIONAL BASE,BASE GROUP 12	2,999.92 SY	$20.00	$59,998.40
334-1-54	SUPERPAVE ASPH CONC, TRAF D, PG76-22	824.98 TN	$91.86	$75,782.66
337-7-25	ASPH CONC FC,INC BIT,FC-5,PG76-22	120.00 TN	$233.58	$28,029.60

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	2
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	0

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.68 GM	$893.69	$607.71
711-15-101	THERMOPLASTIC, STD-OP, WHITE, SOLID, 6"	0.68 GM	$4,584.36	$3,117.36
	Roadway Component Total			$188,314.76

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	12.25 / 12.25
Total Outside Shoulder Perf. Turf Width L/R	5.00 / 5.00
Sidewalk Width L/R	5.00 / 5.00

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
570-1-2	PERFORMANCE TURF, SOD	1,999.95 SY	$3.76	$7,519.81

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
285-704	OPTIONAL BASE,BASE GROUP 04	2,461.48 SY	$21.30	$52,429.52
334-1-12	SUPERPAVE ASPHALTIC CONC, TRAFFIC B	394.20 TN	$131.69	$51,912.20
337-7-25	ASPH CONC FC,INC BIT,FC-5,PG76-22	177.87 TN	$233.58	$41,546.87

Erosion Control

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	3,599.90 LF	$1.87	$6,731.81
104-15	SOIL TRACKING PREVENTION DEVICE	1.00 EA	$2,083.20	$2,083.20
107-1	LITTER REMOVAL	1.00 AC	$41.36	$41.36
107-2	MOWING	2.00 AC	$74.31	$148.62
	Shoulder Component Total			$162,413.39

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
425-1-521	INLETS, DT BOT, TYPE C, <10'	2.00 EA	$5,333.93	$10,667.86
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	800.00 LF	$166.55	$133,240.00
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	72.00 LF	$245.14	$17,650.08
430-175-148	PIPE CULV, OPT MATL, ROUND, 48"S/CD	1,712.00 LF	$372.58	$637,856.96
	Drainage Component Total			$799,414.90

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	7.00	AS	$353.51	$2,474.57
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	1.00	AS	$1,062.02	$1,062.02
700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	1.00	AS	$6,824.23	$6,824.23
	Signing Component Total				$10,360.82

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
Spacing	MAX

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	1,799.95	LF	$8.44	$15,191.58
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	234.88	LF	$18.97	$4,455.67
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	8.00	EA	$647.64	$5,181.12
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	6,104.50	LF	$2.48	$15,139.16
715-4-13	LIGHT POLE COMPLETE, F&I-STD, 40'	8.00	EA	$6,064.29	$48,514.32
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	8.00	EA	$611.83	$4,894.64
	Subcomponent Total				$93,376.49

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
715-7-11	LOAD CENTER, F&I, SECONDARY VOLTAGE	1.00	EA	$11,396.80	$11,396.80
	Lighting Component Total				$104,773.29

RETAINING WALLS COMPONENT

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
521-8-1	CONC TRAF RAIL BAR, JCT SLAB,32"F SHAPE	3,034.61	LF	$250.00	$758,652.50
	Comment: Ret. Wall 1 West side of ramp Ret. Wall 2 East side of ramp				

Retaining Wall 1

Description	Value
Length	1,025.00
Begin height	1.00
End Height	24.50
Multiplier	1

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
548-12	RET WALL SYSTEM, PERM, EX BARRIER	13,068.75 SF	$27.50	$359,390.62

Retaining Wall 2

Description	Value
Length	1,028.00
Begin height	1.00
End Height	24.50
Multiplier	1

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
548-12	RET WALL SYSTEM, PERM, EX BARRIER	13,107.00 SF	$27.50	$360,442.50

Retaining Walls Component Total $1,478,485.63

Sequence 2 Total $2,871,831.41

Sequence: 3 NUU - New Construction, Undivided, Urban **Net Length:** 0.501 MI
2,645 LF

Description: NB Express Lanes Egress to Broward Blvd (Ramp B)

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	50.00 / 50.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.294
Top of Structural Course For Begin Section	16.00
Top of Structural Course For End Section	42.00
Horizontal Elevation For Begin Section	16.00
Horizontal Elevation For End Section	17.00
Front Slope L/R	0 to 1 / 0 to 1
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	6.07 AC	$12,200.00	$74,054.00
120-6	EMBANKMENT	21,224.24 CY	$25.94	$550,556.79
	Earthwork Component Total			$624,610.79

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	1
Roadway Pavement Width L/R	7.50 / 7.50
Structural Spread Rate	550
Friction Course Spread Rate	80

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	5,925.43 SY	$5.91	$35,019.29
285-712	OPTIONAL BASE,BASE GROUP 12	4,408.80 SY	$20.00	$88,176.00
334-1-54	SUPERPAVE ASPH CONC, TRAF D, PG76-22	1,212.42 TN	$91.86	$111,372.90
337-7-25	ASPH CONC FC,INC BIT,FC-5,PG76-22	176.35 TN	$233.58	$41,191.83

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
337-7-25	ASPH CONC FC,INC BIT,FC-5,PG76-22	136.26 TN	$233.58	$31,827.61
	Comment: Accounts for shoulder friction course			

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt

Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	2
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	0

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	1.00	GM	$893.69	$893.69
711-15-101	THERMOPLASTIC, STD-OP, WHITE, SOLID, 6"	1.00	GM	$4,584.36	$4,584.36
	Roadway Component Total				$313,065.68

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	7.25 / 7.25
Total Outside Shoulder Perf. Turf Width L/R	0.00 / 0.00
Sidewalk Width L/R	5.00 / 5.00

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	3,406.40	SY	$5.91	$20,131.82
285-704	OPTIONAL BASE,BASE GROUP 04	3,406.40	SY	$21.30	$72,556.32
334-1-12	SUPERPAVE ASPHALTIC CONC, TRAFFIC B	374.68	TN	$131.69	$49,341.61

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	5,290.56	LF	$1.87	$9,893.35
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$2,083.20	$2,083.20
107-1	LITTER REMOVAL	2.00	AC	$41.36	$82.72
107-2	MOWING	2.00	AC	$74.31	$148.62
	Shoulder Component Total				$154,237.64

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-521	INLETS, DT BOT, TYPE C, <10'	3.00	EA	$5,333.93	$16,001.79
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	1,168.00	LF	$166.55	$194,530.40
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	104.00	LF	$245.14	$25,494.56
430-175-148	PIPE CULV, OPT MATL, ROUND, 48"S/CD	2,512.00	LF	$372.58	$935,920.96
	Drainage Component Total				$1,171,947.71

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	5.00	AS	$353.51	$1,767.55
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	2.00	AS	$1,062.02	$2,124.04
700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	2.00	AS	$6,824.23	$13,648.46
	Signing Component Total				$17,540.05

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
Spacing	MAX

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	2,645.28	LF	$8.44	$22,326.16
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	345.19	LF	$18.97	$6,548.25
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	11.00	EA	$647.64	$7,124.04
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	8,971.41	LF	$2.48	$22,249.10
715-4-13	LIGHT POLE COMPLETE, F&I-STD, 40'	11.00	EA	$6,064.29	$66,707.19
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	11.00	EA	$611.83	$6,730.13
	Subcomponent Total				$131,684.87

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
715-7-11	LOAD CENTER, F&I, SECONDARY VOLTAGE	1.00	EA	$11,396.80	$11,396.80
	Lighting Component Total				$143,081.67

BRIDGES COMPONENT

Bridge 003

Description	Value
Estimate Type	SF Estimate
Primary Estimate	YES
Length (LF)	925.96
Width (LF)	29.67
Type	Medium Level
Cost Factor	3.53
Structure No.	
Removal of Existing Structures area	15,834.00
Default Cost per SF	$65.00
Factored Cost per SF	$229.45
Final Cost per SF	**$246.05**
Basic Bridge Cost	**$6,303,733.36**
Description	NB EXPRESS LANES EGRESS BRAID OVER I-95 (RAMP B)

Bridge Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-3	REMOVAL OF EXISTING STRUCTURES/BRIDGES	15,834.00	SF	$27.83	$440,660.22
400-2-10	CONC CLASS II, APPROACH SLABS	65.93	CY	$462.96	$30,522.95
415-1-9	REINF STEEL- APPROACH SLABS	11,537.75	LB	$1.02	$11,768.50

Bridge X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
521-5-13	CONC TRAF RAIL- BRIDGE, 36" SING SLOPE	3,041.31	LF	$136.03	$413,709.40
	Bridge 003 Total				$7,200,394.44
	Bridges Component Total				$7,200,394.44

RETAINING WALLS COMPONENT

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
521-8-1	CONC TRAF RAIL BAR, JCT SLAB,32"F SHAPE	3,776.00	LF	$250.00	$944,000.00
	Comment: Ret. wall 1 West side of ramp before bridge. Ret. wall 2 East side of ramp before bridge. Ret. wall 3 West side of ramp after bridge.				

Retaining Wall 1

Description	Value
Length	855.00
Begin height	16.00
End Height	42.00
Multiplier	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
548-12	RET WALL SYSTEM, PERM, EX BARRIER	24,795.00	SF	$27.50	$681,862.50

Retaining Wall 2

Description	Value
Length	855.00
Begin height	16.00
End Height	42.00
Multiplier	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
548-12	RET WALL SYSTEM, PERM, EX BARRIER	24,795.00	SF	$27.50	$681,862.50

Retaining Wall 3

Description	Value

Length	744.00
Begin height	32.00
End Height	12.00
Multiplier	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
548-12	RET WALL SYSTEM, PERM, EX BARRIER	16,368.00	SF	$27.50	$450,120.00
	Retaining Walls Component Total				$2,757,845.00

Sequence 3 Total $12,382,722.98

Sequence: 4 NUU - New Construction, Undivided, Urban **Net Length:** 0.633 MI
3,342 LF

Description: SB Express Lanes Ingress From Broward Blvd (Ramp C)

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	50.00 / 50.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.180
Top of Structural Course For Begin Section	30.00
Top of Structural Course For End Section	8.00
Horizontal Elevation For Begin Section	9.00
Horizontal Elevation For End Section	8.00
Front Slope L/R	0 to 1 / 0 to 1
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	7.67 AC	$12,200.00	$93,574.00
120-1	REGULAR EXCAVATION	13,399.58 CY	$20.52	$274,959.38
	Earthwork Component Total			$368,533.38

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	2
Roadway Pavement Width L/R	24.00 / 0.00
Structural Spread Rate	550
Friction Course Spread Rate	80

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	5,369.10 SY	$5.91	$31,731.38
	Comment: Includes widening of existing ramp and new construction			
285-712	OPTIONAL BASE,BASE GROUP 12	5,369.10 SY	$20.00	$107,382.00
	Comment: Includes widening of existing ramp and new construction			
327-70-13	MILLING EXIST ASPH PAVT,1 3/4" AVG DEPTH	4,558.50 SY	$2.50	$11,396.25
334-1-54	SUPERPAVE ASPH CONC, TRAF D, PG76-22	1,476.50 TN	$91.86	$135,631.29
	Comment: Includes widening of existing ramp and new construction and M&R			
337-7-25	ASPH CONC FC,INC BIT,FC-5,PG76-22	393.35 TN	$233.58	$91,878.69
	Comment: Includes mainline and shoulder widening, mainline and shoulder new construction and mainline and shoulder M&R			
710-11-131		0.32 GM	$378.87	$121.24

	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"			
	Comment: Includes 2-lane part of ramp			
711-16-131	THERMOPLASTIC, STD-OTH, WHITE, SKIP, 6"	0.32 GM	$1,300.13	$416.04
	Comment: Includes 2-lane part of ramp			

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	2
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	1.27	GM	$893.69	$1,134.99
711-15-101	THERMOPLASTIC, STD-OP, WHITE, SOLID, 6"	1.27	GM	$4,584.36	$5,822.14
	Roadway Component Total				$385,514.02

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	12.25 / 12.25
Total Outside Shoulder Perf. Turf Width L/R	5.00 / 5.00
Sidewalk Width L/R	5.00 / 5.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
570-1-1	PERFORMANCE TURF	3,713.60	SY	$3.13	$11,623.57

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	4,464.90	SY	$5.91	$26,387.56
	Comment: Includes widening and new construction				
285-704	OPTIONAL BASE,BASE GROUP 04	44,664.90	SY	$21.30	$951,362.37
	Comment: Includes widening and new construction				
327-70-13	MILLING EXIST ASPH PAVT,1 3/4" AVG DEPTH	1,000.00	SY	$2.50	$2,500.00
334-1-12	SUPERPAVE ASPHALTIC CONC, TRAFFIC B	491.12	TN	$131.69	$64,675.59
	Comment: Includes all shoulders				

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	6,684.48	LF	$1.87	$12,499.98
104-15		1.00	EA	$2,083.20	$2,083.20

	SOIL TRACKING PREVENTION DEVICE			
104-18	INLET PROTECTION SYSTEM	33.00 EA	$107.49	$3,547.17
107-1	LITTER REMOVAL	7.67 AC	$41.36	$317.23
107-2	MOWING	7.67 AC	$74.31	$569.96
	Shoulder Component Total			$1,075,566.63

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-521	INLETS, DT BOT, TYPE C, <10'	4.00	EA	$5,333.93	$21,335.72
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	1,472.00	LF	$166.55	$245,161.60
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	136.00	LF	$245.14	$33,339.04
430-175-148	PIPE CULV, OPT MATL, ROUND, 48"S/CD	3,168.00	LF	$372.58	$1,180,333.44
	Drainage Component Total				$1,480,169.80

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	13.00	AS	$353.51	$4,595.63
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	2.00	AS	$1,062.02	$2,124.04
700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	2.00	AS	$6,824.23	$13,648.46

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-4-114	OH STATIC SIGN STR, F&I, C 41-50 FT	1.00	EA	$68,164.24	$68,164.24
	Signing Component Total				$88,532.37

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
Spacing	MAX

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	3,342.24	LF	$8.44	$28,208.51
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	436.14	LF	$18.97	$8,273.58
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	14.00	EA	$647.64	$9,066.96
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	11,335.13	LF	$2.48	$28,111.12
715-4-13	LIGHT POLE COMPLETE, F&I-STD, 40'	14.00	EA	$6,064.29	$84,900.06

715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	14.00	EA	$611.83	$8,565.62
	Subcomponent Total				$167,125.84

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
715-7-11	LOAD CENTER, F&I, SECONDARY VOLTAGE	1.00	EA	$11,396.80	$11,396.80
	Lighting Component Total				$178,522.65

BRIDGES COMPONENT

Bridge 004

Description	Value
Estimate Type	SF Estimate
Primary Estimate	YES
Length (LF)	411.00
Width (LF)	30.00
Type	Medium Level
Cost Factor	3.32
Structure No.	
Removal of Existing Structures area	0.00
Default Cost per SF	$65.00
Factored Cost per SF	$215.80
Final Cost per SF	**$272.67**
Basic Bridge Cost	**$2,660,814.00**
Description	SB EXPRESS LANES INGRESS (RAMP C)

Bridge Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-10	CONC CLASS II, APPROACH SLABS	66.67	CY	$462.96	$30,865.54
415-1-9	REINF STEEL- APPROACH SLABS	11,667.25	LB	$1.02	$11,900.60

Bridge X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
521-5-13	CONC TRAF RAIL- BRIDGE, 36" SING SLOPE	4,840.00	LF	$136.03	$658,385.20
	Bridge 004 Total				$3,361,965.34
	Bridges Component Total				$3,361,965.34

RETAINING WALLS COMPONENT

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
521-8-1	CONC TRAF RAIL BAR, JCT SLAB,32"F SHAPE	4,695.55	LF	$250.00	$1,173,887.50
	Comment: Ret. wall 1 W side GP ingress ramp Ret. wall 2 E side EL ramp before bridge Ret. wall 3 W side EL ramp before bridge Ret. wall 4 W side EL ramp after bridge Ret. wall 5 E side EL ramp after bridge				

Retaining Wall 1

Description	Value
Length	2,000.00
Begin height	19.00
End Height	7.00
Multiplier	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
548-12	RET WALL SYSTEM, PERM, EX BARRIER	26,000.00	SF	$27.50	$715,000.00

Retaining Wall 2

Description	Value
Length	350.80
Begin height	30.00
End Height	30.00
Multiplier	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
548-12	RET WALL SYSTEM, PERM, EX BARRIER	10,524.00	SF	$27.50	$289,410.00

Retaining Wall 3

Description	Value
Length	150.00
Begin height	29.00
End Height	31.00
Multiplier	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
548-12	RET WALL SYSTEM, PERM, EX BARRIER	4,500.00	SF	$27.50	$123,750.00

Retaining Wall 4

Description	Value
Length	1,071.00
Begin height	27.00
End Height	8.00
Multiplier	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
548-12	RET WALL SYSTEM, PERM, EX BARRIER	18,742.50	SF	$27.50	$515,418.75

Retaining Wall 5

Description	Value
Length	543.00
Begin height	27.00
End Height	8.00
Multiplier	1

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
548-12	RET WALL SYSTEM, PERM, EX BARRIER	9,502.50 SF	$27.50	$261,318.75
	Retaining Walls Component Total			$3,078,785.00
Sequence 4 Total				$10,017,589.19

Sequence: 5 NUU - New Construction, Undivided, Urban **Net Length:** 0.472 MI
2,493 LF

Description: NB Express Lanes Ingress From Broward Blvd (Ramp D)

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	50.00 / 50.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.294
Top of Structural Course For Begin Section	12.00
Top of Structural Course For End Section	48.00
Horizontal Elevation For Begin Section	12.00
Horizontal Elevation For End Section	28.00
Front Slope L/R	1 to 1 / 1 to 1
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	5.72	AC	$12,200.00	$69,784.00
120-6	EMBANKMENT	21,657.74	CY	$25.94	$561,801.78
	Earthwork Component Total				$631,585.78

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	1
Roadway Pavement Width L/R	15.00 / 0.00
Structural Spread Rate	550
Friction Course Spread Rate	80

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	4,870.08	SY	$5.91	$28,782.17
285-712	OPTIONAL BASE,BASE GROUP 12	4,155.36	SY	$20.00	$83,107.20
334-1-54	SUPERPAVE ASPH CONC, TRAF D, PG76-22	1,142.72	TN	$91.86	$104,970.26
337-7-25	ASPH CONC FC,INC BIT,FC-5,PG76-22	166.21	TN	$233.58	$38,823.33

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
337-7-25	ASPH CONC FC,INC BIT,FC-5,PG76-22	170.47	TN	$233.58	$39,818.38
	Comment: Accounts for shoulder Friction course				

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt

Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	2
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	0

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.94	GM	$893.69	$840.07
711-15-101	THERMOPLASTIC, STD-OP, WHITE, SOLID, 6"	0.94	GM	$4,584.36	$4,309.30
	Roadway Component Total				$300,650.71

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	12.25 / 12.25
Total Outside Shoulder Perf. Turf Width L/R	5.00 / 5.00
Sidewalk Width L/R	5.00 / 5.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
570-1-1	PERFORMANCE TURF	2,770.24	SY	$3.13	$8,670.85

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	4,261.90	SY	$5.91	$25,187.83
285-704	OPTIONAL BASE,BASE GROUP 04	4,261.90	SY	$21.30	$90,778.47
334-1-12	SUPERPAVE ASPHALTIC CONC, TRAFFIC B	468.80	TN	$131.69	$61,736.27

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	4,986.43	LF	$1.87	$9,324.62
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$2,083.20	$2,083.20
107-1	LITTER REMOVAL	5.72	AC	$41.36	$236.58
107-2	MOWING	5.72	AC	$74.31	$425.05
	Shoulder Component Total				$198,442.87

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-521	INLETS, DT BOT, TYPE C, <10'	3.00	EA	$5,333.93	$16,001.79
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	1,104.00	LF	$166.55	$183,871.20
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	104.00	LF	$245.14	$25,494.56
430-175-148		2,368.00	LF	$372.58	$882,269.44

	PIPE CULV, OPT MATL, ROUND, 48"S/CD				
	Drainage Component Total				$1,107,636.99

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	10.00	AS	$353.51	$3,535.10
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	1.00	AS	$1,062.02	$1,062.02
700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	1.00	AS	$6,824.23	$6,824.23

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-2-16	MULTI- POST SIGN, F&I GM, 101-200 SF	1.00	AS	$9,349.80	$9,349.80
700-4-128	OH STATIC SIGN STR, F&I, S 201 FT AND GR	2.00	EA	$237,384.37	$474,768.74
	Signing Component Total				$495,539.89

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
Spacing	MAX

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	2,493.22	LF	$8.44	$21,042.78
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	325.35	LF	$18.97	$6,171.89
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	10.00	EA	$647.64	$6,476.40
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	8,455.69	LF	$2.48	$20,970.11
715-4-13	LIGHT POLE COMPLETE, F&I-STD, 40'	10.00	EA	$6,064.29	$60,642.90
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	10.00	EA	$611.83	$6,118.30
	Subcomponent Total				$121,422.38

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
715-7-11	LOAD CENTER, F&I, SECONDARY VOLTAGE	1.00	EA	$11,396.80	$11,396.80
	Lighting Component Total				$132,819.18

BRIDGES COMPONENT

Bridge 005

Description	Value

Estimate Type	SF Estimate
Primary Estimate	YES
Length (LF)	724.37
Width (LF)	30.00
Type	Medium Level
Cost Factor	3.33
Structure No.	
Removal of Existing Structures area	0.00
Default Cost per SF	$65.00
Factored Cost per SF	$216.45
Final Cost per SF	**$248.71**
Basic Bridge Cost	**$4,703,696.60**
Description	BRAID OVER I-95 TO NB EXPRESS LANES (RAMP D)

Bridge Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-10	CONC CLASS II, APPROACH SLABS	66.67	CY	$462.96	$30,865.54
415-1-9	REINF STEEL- APPROACH SLABS	11,667.25	LB	$1.02	$11,900.60

Bridge X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
521-5-13	CONC TRAF RAIL- BRIDGE, 36" SING SLOPE	4,840.00	LF	$136.03	$658,385.20
	Bridge 005 Total				$5,404,847.94
	Bridges Component Total				$5,404,847.94

RETAINING WALLS COMPONENT

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
521-8-1	CONC TRAF RAIL BAR, JCT SLAB,32"F SHAPE	3,103.00	LF	$250.00	$775,750.00
	Comment: Ret. wall 1 E side of ramp before bridge Ret. wall 2 W side of ramp before bridge Ret. wall 3 W side of ramp after bridge Ret. wall 4 E side of ramp after bridge				

Retaining Wall 1

Description	Value
Length	1,111.50
Begin height	12.00
End Height	48.00
Multiplier	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
548-12	RET WALL SYSTEM, PERM, EX BARRIER	33,345.00	SF	$27.50	$916,987.50

Retaining Wall 2

Description	Value
Length	716.00
Begin height	12.00

End Height	48.00
Multiplier	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
548-12	RET WALL SYSTEM, PERM, EX BARRIER	21,480.00	SF	$27.50	$590,700.00

Retaining Wall 3

Description	Value
Length	1,064.00
Begin height	37.00
End Height	15.00
Multiplier	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
548-12	RET WALL SYSTEM, PERM, EX BARRIER	27,664.00	SF	$27.50	$760,760.00

Retaining Wall 4

Description	Value
Length	671.50
Begin height	37.00
End Height	15.00
Multiplier	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
548-12	RET WALL SYSTEM, PERM, EX BARRIER	17,459.00	SF	$27.50	$480,122.50

Retaining Walls Component Total $3,524,320.00

Sequence 5 Total $11,795,843.36

Sequence: 6 NUU - New Construction, Undivided, Urban **Net Length:** 0.565 MI
2,983 LF

Description: SB Express Lanes Egress to Broward Blvd (Ramp E)

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	50.00 / 50.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.250
Top of Structural Course For Begin Section	56.00
Top of Structural Course For End Section	29.00
Horizontal Elevation For Begin Section	30.00
Horizontal Elevation For End Section	29.00
Front Slope L/R	0 to 1 / 0 to 1
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	6.85	AC	$12,200.00	$83,570.00
120-1	REGULAR EXCAVATION	17,326.71	CY	$20.52	$355,544.09
	Earthwork Component Total				$439,114.09

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	1
Roadway Pavement Width L/R	15.00 / 0.00
Structural Spread Rate	550
Friction Course Spread Rate	80

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	8,990.70	SY	$5.91	$53,135.04
	Comment: Includes new construction and widening.				
285-712	OPTIONAL BASE,BASE GROUP 12	7,769.00	SY	$20.00	$155,380.00
	Comment: Includes new construction and widening.				
334-1-54	SUPERPAVE ASPH CONC, TRAF D, PG76-22	1,868.22	TN	$91.86	$171,614.69
	Comment: Includes SP for widening, new construction and m&r.				
337-7-25	ASPH CONC FC,INC BIT,FC-5,PG76-22	820.00	TN	$233.58	$191,535.60
	Comment: Includes FC for widening, new construction and m&r of mainline and shoulder.				
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	2.08	GM	$893.69	$1,858.88
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	3.91	GM	$378.87	$1,481.38
711-15-101	THERMOPLASTIC, STD-OP, WHITE, SOLID, 6"	2.08	GM	$4,584.36	$9,535.47

711-15-131	THERMOPLASTIC, STD-OP, WHITE, SKIP, 6"	3.91 GM	$1,435.82	$5,614.06

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	2
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	0

Roadway Component Total $590,155.12

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	12.25 / 12.25
Total Outside Shoulder Perf. Turf Width L/R	5.00 / 5.00
Sidewalk Width L/R	5.00 / 5.00

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	6,472.20	SY	$5.91	$38,250.70
	Comment: includes widening and new construction.				
285-704	OPTIONAL BASE,BASE GROUP 04	6,472.20	SY	$21.30	$137,857.86
	Comment: includes widening and new construction.				
334-1-12	SUPERPAVE ASPHALTIC CONC, TRAFFIC B	711.92	TN	$131.69	$93,752.74
	Comment: includes SP for widening, new construction and m&r				

Shoulder Component Total $269,861.30

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-521	INLETS, DT BOT, TYPE C, <10'	3.00	EA	$5,333.93	$16,001.79
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	1,320.00	LF	$166.55	$219,846.00
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	120.00	LF	$245.14	$29,416.80
430-175-148	PIPE CULV, OPT MATL, ROUND, 48"S/CD	2,824.00	LF	$372.58	$1,052,165.92

Drainage Component Total $1,317,430.51

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	12.00	AS	$353.51	$4,242.12

700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	2.00	AS	$1,062.02	$2,124.04
700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	2.00	AS	$6,824.23	$13,648.46

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-60	SINGLE POST SIGN, REMOVE	5.00	AS	$26.23	$131.15

Signing Component Total $20,145.77

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
Spacing	MAX

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	2,983.20	LF	$8.44	$25,178.21
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	389.28	LF	$18.97	$7,384.64
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	12.00	EA	$647.64	$7,771.68
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	10,117.46	LF	$2.48	$25,091.30
715-4-13	LIGHT POLE COMPLETE, F&I-STD, 40'	12.00	EA	$6,064.29	$72,771.48
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	12.00	EA	$611.83	$7,341.96
	Subcomponent Total				$145,539.27

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
715-7-11	LOAD CENTER, F&I, SECONDARY VOLTAGE	1.00	EA	$11,396.80	$11,396.80

Lighting Component Total $156,936.07

BRIDGES COMPONENT

Bridge 006

Description	Value
Estimate Type	SF Estimate
Primary Estimate	YES
Length (LF)	995.50
Width (LF)	30.00
Type	Medium Level
Cost Factor	3.34
Structure No.	
Removal of Existing Structures area	0.00
Default Cost per SF	$65.00
Factored Cost per SF	$217.10
Final Cost per SF	**$227.60**
Basic Bridge Cost	**$6,483,691.50**
Description	SB EXPRESS LANES EGREES BRAID OVER I-95 (RAMP E)

Bridge Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
400-2-10	CONC CLASS II, APPROACH SLABS	66.67 CY	$462.96	$30,865.54
415-1-9	REINF STEEL- APPROACH SLABS	11,667.25 LB	$1.02	$11,900.60

Bridge X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
521-5-13	CONC TRAF RAIL- BRIDGE, 36" SING SLOPE	1,989.87 LF	$136.03	$270,682.02
	Bridge 006 Total			$6,797,139.66

Bridge 006A

Description	Value
Estimate Type	SF Estimate
Primary Estimate	YES
Length (LF)	155.00
Width (LF)	20.00
Type	Medium Level, Widen
Cost Factor	3.25
Structure No.	
Removal of Existing Structures area	0.00
Default Cost per SF	$65.00
Factored Cost per SF	$211.25
Final Cost per SF	**$227.84**
Basic Bridge Cost	**$654,875.00**
Description	WIDENING OF BRIDGE OVER NORTH FORK NEW RIVER (RAMP E)

Bridge Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
400-2-10	CONC CLASS II, APPROACH SLABS	44.44 CY	$462.96	$20,573.94
415-1-9	REINF STEEL- APPROACH SLABS	7,777.00 LB	$1.02	$7,932.54

Bridge X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
521-5-1	CONC TRAF RAIL- BRG, 32" F-SHAPE	310.00 LF	$73.98	$22,933.80
	Bridge 006A Total			$706,315.28
	Bridges Component Total			$7,503,454.94

RETAINING WALLS COMPONENT

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
521-8-1	CONC TRAF RAIL BAR, JCT SLAB,32"F SHAPE	5,380.00 LF	$250.00	$1,345,000.00
	Comment: Ret. walls 1&2 E and W side of Broward Blvd Ramp Ret. walls 3&4 W and E side between bridges over N Fork New River and I-95 Ret. walls 5&6 W and E side of ramp after bridge over I-95			

Retaining Wall 1

Description	Value
Length	1,025.00
Begin height	29.00
End Height	38.00
Multiplier	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
548-12	RET WALL SYSTEM, PERM, EX BARRIER	34,337.50	SF	$27.50	$944,281.25

Retaining Wall 2

Description	Value
Length	1,025.00
Begin height	29.00
End Height	38.00
Multiplier	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
548-12	RET WALL SYSTEM, PERM, EX BARRIER	34,337.50	SF	$27.50	$944,281.25

Retaining Wall 3

Description	Value
Length	1,400.00
Begin height	29.00
End Height	42.00
Multiplier	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
548-12	RET WALL SYSTEM, PERM, EX BARRIER	49,700.00	SF	$27.50	$1,366,750.00

Retaining Wall 4

Description	Value
Length	480.00
Begin height	29.00
End Height	42.00
Multiplier	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
548-12	RET WALL SYSTEM, PERM, EX BARRIER	17,040.00	SF	$27.50	$468,600.00

Retaining Wall 5

Description	Value
Length	725.00
Begin height	44.00
End Height	11.00

Multiplier	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
548-12	RET WALL SYSTEM, PERM, EX BARRIER	19,937.50	SF	$27.50	$548,281.25

Retaining Wall 6

Description	Value
Length	725.00
Begin height	44.00
End Height	11.00
Multiplier	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
548-12	RET WALL SYSTEM, PERM, EX BARRIER	19,937.50	SF	$27.50	$548,281.25

Retaining Walls Component Total	$6,165,475.00
Sequence 6 Total	$16,462,572.80

Sequence: 7 WDU - Widen/Resurface, Divided, Urban **Net Length:** 2.286 MI
12,070 LF

Description: I-95 Widening and reconstruction

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	50.00 / 50.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	2.286
Top of Structural Course For Begin Section	102.00
Top of Structural Course For End Section	102.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Existing Front Slope L/R	6 to 1 / 6 to 1
Existing Median Shoulder Cross Slope L/R	0.00 % / 0.00 %
Existing Outside Shoulder Cross Slope L/R	0.00 % / 0.00 %
Front Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	0.00 % / 0.00 %
Outside Shoulder Cross Slope L/R	0.00 % / 0.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	27.71	AC	$12,200.00	$338,062.00
120-2-2	BORROW EXCAVATION, TRUCK MEASURE	7,054.29	CY	$24.26	$171,137.08
	Earthwork Component Total				$509,199.08

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	6
Existing Roadway Pavement Width L/R	66.00 / 66.00
Structural Spread Rate	165
Friction Course Spread Rate	80
Widened Outside Pavement Width L/R	26.00 / 14.00
Widened Inside Pavement Width L/R	0.00 / 0.00
Widened Structural Spread Rate	275
Widened Friction Course Spread Rate	80

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	22,328.00	SY	$5.91	$131,958.48
	Comment: includes I-995 widening				
285-712	OPTIONAL BASE,BASE GROUP 12	22,328.00	SY	$20.00	$446,560.00
	Comment: Includes widening				
327-70-13	MILLING EXIST ASPH PAVT,1 3/4" AVG DEPTH	137,093.00	SY	$2.50	$342,732.50
334-1-54	SUPERPAVE ASPH CONC, TRAF D, PG76-22	13,680.00	TN	$91.86	$1,256,644.80
	Comment: includes widening and m&r				

337-7-25	ASPH CONC FC,INC BIT,FC-5,PG76-22	6,377.00 TN	$233.58	$1,489,539.66
	Comment: includes widening and m&r			

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	8
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	4

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE/RAISED PAVEMENT MARKERS	1,543.00 EA	$4.39	$6,773.77
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	18.29 GM	$893.69	$16,345.59
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	9.14 GM	$378.87	$3,462.87
711-15-101	THERMOPLASTIC, STD-OP, WHITE, SOLID, 6"	18.29 GM	$4,584.36	$83,847.94
711-15-131	THERMOPLASTIC, STD-OP, WHITE, SKIP, 6"	9.14 GM	$1,435.82	$13,123.39
	Roadway Component Total			$3,790,989.00

SHOULDER COMPONENT

User Input Data

Description	Value
Existing Total Outside Shoulder Width L/R	12.25 / 12.25
New Total Outside Shoulder Width L/R	12.25 / 12.25
Total Outside Shoulder Perf. Turf Width L/R	5.00 / 5.00
Sidewalk Width L/R	5.00 / 5.00

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
570-1-1	PERFORMANCE TURF	13,411.20 SY	$3.13	$41,977.06

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	9,248.00 SY	$5.91	$54,655.68
	Comment: includes widening			
285-704	OPTIONAL BASE,BASE GROUP 04	9,248.00 SY	$21.30	$196,982.40
327-70-1	MILLING EXIST ASPH PAVT, 1" AVG DEPTH	12,802.00 SY	$2.75	$35,205.50
334-1-12	SUPERPAVE ASPHALTIC CONC, TRAFFIC B	1,721.00 TN	$131.69	$226,638.49
	Comment: includes widening and m&r			
	Shoulder Component Total			$555,459.13

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	22.00
Performance Turf Width	5.34

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
570-1-1	PERFORMANCE TURF	7,161.58	SY	$3.13	$22,415.75
	Median Component Total				$22,415.75

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	1,264.00	LF	$166.55	$210,519.20
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	368.00	LF	$245.14	$90,211.52
	Drainage Component Total				$300,730.72

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	20.00	AS	$353.51	$7,070.20
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	5.00	AS	$1,062.02	$5,310.10
700-1-60	SINGLE POST SIGN, REMOVE	20.00	AS	$26.23	$524.60
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	5.00	AS	$4,747.26	$23,736.30
700-2-60	MULTI- POST SIGN, REMOVE	5.00	AS	$545.32	$2,726.60

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-50	SINGLE POST SIGN, RELOCATE	12.00	AS	$288.20	$3,458.40
700-2-50	MULTI- POST SIGN, RELOCATE	10.00	AS	$2,995.10	$29,951.00
700-3-108	SIGN PANEL, F&I GM, 301-400 SF	2.00	EA	$11,562.50	$23,125.00
700-3-207	SIGN PANEL, F&I OM, 201-300 SF	3.00	EA	$5,880.24	$17,640.72
700-3-209	SIGN PANEL, F&I OM, 401-500 SF	28.00	EA	$14,238.40	$398,675.20
700-3-506	SIGN PANEL, RELOCATE, 101-200 SF	2.00	EA	$868.75	$1,737.50
700-3-507	SIGN PANEL, RELOCATE, 201-300 SF	5.00	EA	$1,031.25	$5,156.25
700-3-511	SIGN PANEL, RELOCATE, 601 SF AND GREATER	1.00	EA	$2,500.00	$2,500.00
700-3-606	SIGN PANEL, REMOVE, 101-200 SF	2.00	EA	$451.31	$902.62
700-3-607	SIGN PANEL, REMOVE, 201-300 SF	3.00	EA	$856.89	$2,570.67
700-3-608	SIGN PANEL, REMOVE, 301-400 SF	1.00	EA	$810.42	$810.42

700-4-114	OH STATIC SIGN STR, F&I, C 41-50 FT	3.00 EA	$68,164.24	$204,492.72
700-4-127	OH STATIC SIGN STR, F&I, S 151-200 FT	14.00 EA	$239,960.24	$3,359,443.36
700-4-514	OH STATIC SIGN STR, RELOCATE, C 41-50 FT	1.00 EA	$83,172.11	$83,172.11
700-11-500	ELECT DISP SIGN, RELOCATE	3.00 AS	$999.01	$2,997.03
	Signing Component Total			$4,176,000.80

INTELLIGENT TRAFFIC SYSTEM (ITS) COMPONENT

Description of Work

This component includes the conduit, fiber, electrical conductors, devices, poles, cabinets, pullboxes, ramp metering components, and cabinet components impacted.

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	48,000.00	LF	$8.44	$405,120.00
633-1-123	FIBER OPTIC CABLE, F&I, UG,49-96	48,000.00	LF	$3.34	$160,320.00
633-2-31	FIBER OPTIC CONNECTION, INSTALL, SPLICE	500.00	EA	$50.86	$25,430.00
635-2-12	PULL & SPLICE BOX, F&I, 24" X 36"	50.00	EA	$1,303.14	$65,157.00
639-1-111	ELECTRICAL POWER SRV,F&I,OH,M,FURNISHED	50.00	AS	$1,500.00	$75,000.00
641-3-186	CONCRETE CCTV POLE, FUR & INS W/LOW	6.00	EA	$36,182.00	$217,092.00
660-3-11	VEHICLE DETECTION SYSTEM-MICRO,F&I, CAB	20.00	EA	$2,250.00	$45,000.00
660-4-11	VEHICLE DETECTION SYSTEM-VIDEO, CABINET	20.00	EA	$9,050.77	$181,015.40
660-6-111	VEHICLE DETECTION SYSTEM-AVI T,F&I, CAB	20.00	EA	$8,394.00	$167,880.00
676-2-111	ITS CABINET- F&I, POLE, 336	10.00	EA	$4,469.85	$44,698.50
676-2-131	ITS CABINET- F&I, BASE, 336	2.00	EA	$6,287.50	$12,575.00
676-2-500	ITS CABINET- ADJUST/MODIFY	2.00	EA	$1,563.99	$3,127.98
676-3-10	SMALL EQUIPMENT ENCLOSURE, F&I,>10X13X11	2.00	EA	$1,577.46	$3,154.92
684-2-1	DEVICE SERVER, F&I	10.00	EA	$1,500.00	$15,000.00
684-6-11	WIRELESS COMMUNICATION DEVICE, F&I, ETHE	10.00	EA	$4,216.21	$42,162.10
	Intelligent Traffic System (ITS) Component Total				$1,462,732.90

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
Spacing	MAX

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	12,070.08	LF	$8.44	$101,871.48
630-2-12		1,575.05	LF	$18.97	$29,878.70

	CONDUIT, F& I, DIRECTIONAL BORE				
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	40.00	EA	$647.64	$25,905.60
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	40,935.40	LF	$2.48	$101,519.79
715-4-13	LIGHT POLE COMPLETE, F&I-STD, 40'	40.00	EA	$6,064.29	$242,571.60
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	40.00	EA	$611.83	$24,473.20
	Subcomponent Total				$526,220.37

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
715-7-11	LOAD CENTER, F&I, SECONDARY VOLTAGE	1.00	EA	$11,396.80	$11,396.80
	Lighting Component Total				$537,617.17

BRIDGES COMPONENT

Bridge 007N

Description	Value
Estimate Type	SF Estimate
Primary Estimate	YES
Length (LF)	198.00
Width (LF)	10.00
Type	Low Level, Widen
Cost Factor	3.98
Structure No.	
Removal of Existing Structures area	0.00
Default Cost per SF	$55.00
Factored Cost per SF	$218.90
Final Cost per SF	**$233.50**
Basic Bridge Cost	**$433,422.00**
Description	NB I-95 OVER NW 6TH STREET

Bridge Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-10	CONC CLASS II, APPROACH SLABS	22.22	CY	$462.96	$10,286.97
415-1-9	REINF STEEL- APPROACH SLABS	3,888.50	LB	$1.02	$3,966.27

Bridge X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
521-5-1	CONC TRAF RAIL- BRG, 32" F-SHAPE	198.00	LF	$73.98	$14,648.04
	Bridge 007N Total				$462,323.28

Bridge 007S

Description	Value
Estimate Type	SF Estimate
Primary Estimate	YES
Length (LF)	198.50

Width (LF)		14.00
Type		Medium Level, Widen
Cost Factor		3.36
Structure No.		
Removal of Existing Structures area		0.00
Default Cost per SF		$65.00
Factored Cost per SF		$218.40
Final Cost per SF		**$230.87**
Basic Bridge Cost		**$606,933.60**
Description	SB I-95 OVER NW 6TH STREET	

Bridge Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
400-2-10	CONC CLASS II, APPROACH SLABS	31.11 CY	$462.96	$14,402.69
415-1-9	REINF STEEL- APPROACH SLABS	5,444.25 LB	$1.02	$5,553.14

Bridge X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
521-5-1	CONC TRAF RAIL- BRG, 32" F-SHAPE	198.50 LF	$73.98	$14,685.03
	Bridge 007S Total			$641,574.46
	Bridges Component Total			$1,103,897.74

ARCHITECTURAL COMPONENT

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
750-1-17	ARCH, BUILDING, NEW, STORAGE/MECHANICAL	560.00 SF	$5,360.00	$3,001,600.00
	Comment: Toll Equipment buildings, one NB and one SB, for building and associated toll equipment/gantry.			
	Architectural Component Total			$3,001,600.00

Sequence 7 Total $15,460,642.29

Sequence: 8 NUU - New Construction, Undivided, Urban **Net Length:** 0.117 MI
619 LF

Description: Park and Ride

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	200.00 / 200.00
Incidental Clearing and Grubbing Area	8.35
Alignment Number	1
Distance	0.227
Top of Structural Course For Begin Section	5.00
Top of Structural Course For End Section	5.00
Horizontal Elevation For Begin Section	5.00
Horizontal Elevation For End Section	5.00
Front Slope L/R	0 to 1 / 0 to 1
Outside Shoulder Cross Slope L/R	0.00 % / 0.00 %
Roadway Cross Slope L/R	0.00 % / 0.00 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	8.35 AC	$12,200.00	$101,870.00
120-1	REGULAR EXCAVATION	2,872.10 CY	$20.52	$58,935.49
	Earthwork Component Total			$160,805.49

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	5
Roadway Pavement Width L/R	34.00 / 34.00
Structural Spread Rate	275
Friction Course Spread Rate	110

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	41,108.00 SY	$5.91	$242,948.28
	Comment: includes reconstruction of Tri-Rail to Park& Ride roadway and reconfigured parking areas.			
285-711	OPTIONAL BASE,BASE GROUP 11	41,108.00 SY	$22.03	$905,609.24
	Comment: includes reconstruction of Tri-Rail to Park& Ride roadway and reconfigured parking areas.			
334-1-12	SUPERPAVE ASPHALTIC CONC, TRAFFIC B	5,119.70 TN	$131.69	$674,213.29
	Comment: includes reconstruction of Tri-Rail to Park& Ride roadway and reconfigured parking areas.			
521-72-10	SHLDR CONC BARRIER WALL,RIGID SHLDR 42"	673.00 LF	$290.00	$195,170.00
	Comment: pier protection			

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	N

Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	2
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	2
Skip Stripe No. of Stripes	4

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE/RAISED PAVEMENT MARKERS	95.00	EA	$4.39	$417.05
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.94	GM	$893.69	$840.07
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	0.94	GM	$378.87	$356.14
	Roadway Component Total				$2,019,554.07

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	13.25 / 13.25
Total Outside Shoulder Perf. Turf Width L/R	5.00 / 5.00
Sidewalk Width L/R	6.00 / 6.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
570-1-1	PERFORMANCE TURF	687.57	SY	$3.13	$2,152.09

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	5,112.50	LF	$26.44	$135,174.50
520-2-4	CONCRETE CURB, TYPE D	700.00	LF	$20.33	$14,231.00
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	4,066.00	SY	$40.50	$164,673.00

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	1,237.63	LF	$1.87	$2,314.37
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$2,083.20	$2,083.20
104-18	INLET PROTECTION SYSTEM	6.00	EA	$107.49	$644.94
107-1	LITTER REMOVAL	7.50	AC	$41.36	$310.20
107-2	MOWING	3.50	AC	$74.31	$260.09
	Shoulder Component Total				$321,843.39

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-351	INLETS, CURB, TYPE P-5, <10'	5.00	EA	$6,422.69	$32,113.45

425-1-451	INLETS, CURB, TYPE J-5, <10'	2.00 EA	$8,291.67	$16,583.34
425-1-521	INLETS, DT BOT, TYPE C, <10'	5.00 EA	$5,333.93	$26,669.65
425-2-41	MANHOLES, P-7, <10'	5.00 EA	$5,967.25	$29,836.25
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	280.00 LF	$166.55	$46,634.00
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	24.00 LF	$245.14	$5,883.36
430-175-148	PIPE CULV, OPT MATL, ROUND, 48"S/CD	592.00 LF	$372.58	$220,567.36
	Drainage Component Total			$378,287.41

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	10.00	AS	$353.51	$3,535.10
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	5.00	AS	$1,062.02	$5,310.10
700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	2.00	AS	$6,824.23	$13,648.46
	Signing Component Total				$22,493.66

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
Spacing	MAX

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	618.82	LF	$8.44	$5,222.84
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	80.75	LF	$18.97	$1,531.83
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	3.00	EA	$647.64	$1,942.92
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	2,098.70	LF	$2.48	$5,204.78
715-4-13	LIGHT POLE COMPLETE, F&I-STD, 40'	3.00	EA	$6,064.29	$18,192.87
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	3.00	EA	$611.83	$1,835.49
	Subcomponent Total				$33,930.72

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
715-7-11	LOAD CENTER, F&I, SECONDARY VOLTAGE	1.00	EA	$11,396.80	$11,396.80
	Lighting Component Total				$45,327.53

Sequence 8 Total $2,948,311.55

Sequence: 9 MIS - Miscellaneous Construction **Net Length:** 0.000 MI
0 LF

Description: Non-Bid Items

ROADWAY COMPONENT

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
999-20-1	DISPUTES REVIEW BD, MEETING-DO NOT BID	20.00	DA	$3,300.00	$66,000.00
	Comment: Included for LREs over $15 million.				
999-20-2	DISPUTES REVIEW BD, HEARING-DO NOT BID	2.00	EA	$4,000.00	$8,000.00
	Comment: Included for LREs over $15 million.				
	Roadway Component Total				$74,000.00

Sequence 9 Total $74,000.00

Sequence: 10 WDU - Widen/Resurface, Divided, Urban **Net Length:** 0.211 MI 1,115 LF

Description: SW 1st Street/SW 22nd Ave and Roundabout.

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	35.00 / 35.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.210
Top of Structural Course For Begin Section	102.00
Top of Structural Course For End Section	102.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Existing Front Slope L/R	6 to 1 / 6 to 1
Existing Median Shoulder Cross Slope L/R	4.00 % / 4.00 %
Existing Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Front Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	4.00 % / 4.00 %
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	1.79 AC	$12,200.00	$21,838.00
120-2-2	BORROW EXCAVATION, TRUCK MEASURE	450.09 CY	$24.26	$10,919.18
	Earthwork Component Total			$32,757.18

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	3
Existing Roadway Pavement Width L/R	20.00 / 20.00
Structural Spread Rate	110
Friction Course Spread Rate	110
Widened Outside Pavement Width L/R	14.00 / 0.00
Widened Inside Pavement Width L/R	0.00 / 0.00
Widened Structural Spread Rate	330
Widened Friction Course Spread Rate	110

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	2,054.33 SY	$5.91	$12,141.09
285-709	OPTIONAL BASE,BASE GROUP 09	1,775.54 SY	$23.34	$41,441.10
327-70-1	MILLING EXIST ASPH PAVT, 1" AVG DEPTH	4,956.16 SY	$2.75	$13,629.44
334-1-53	SUPERPAVE ASPH CONC, TRAF C, PG76-22	286.22 TN	$153.40	$43,906.15
334-1-53	SUPERPAVE ASPH CONC, TRAF C, PG76-22	272.59 TN	$153.40	$41,815.31

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	5,659.80 SY	$5.91	$33,449.42
	Comment: Accounts for Roundabout and roundabout connections to/from SW 1st st. SW 21st Ter, PnR, and train station.			
285-709	OPTIONAL BASE,BASE GROUP 09	5,659.80 SY	$23.34	$132,099.73
	Comment: Accounts for Roundabout and roundabout connections to/from SW 1st st. SW 21st Ter, PnR, and train station.			
334-1-53	SUPERPAVE ASPH CONC, TRAF C, PG76-22	663.72 TN	$153.40	$101,814.65
	Comment: Accounts for Roundabout and roundabout connections to/from SW 1st st. SW 21st Ter, PnR, and train station.			
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	1.15 GM	$893.69	$1,027.74
	Comment: Accounts for Roundabout and roundabout connections to/from SW 1st st. SW 21st Ter, PnR, and train station.			
710-11-123	PAINTED PAVT MARK,STD,WHITE,SOLID, 12"	925.30 LF	$0.53	$490.41
	Comment: Accounts for Roundabout and roundabout connections to/from SW 1st st. SW 21st Ter, PnR, and train station.			
710-11-125	PAINTED PAVT MARK,STD,WHITE,SOLID,24"	238.10 LF	$1.10	$261.91
	Comment: Accounts for Roundabout and roundabout connections to/from SW 1st st. SW 21st Ter, PnR, and train station.			
710-11-201	PAINTED PAVT MARK,STD,YELLOW,SOLID,6"	0.52 GM	$858.67	$446.51
	Comment: Accounts for Roundabout and roundabout connections to/from SW 1st st. SW 21st Ter, PnR, and train station.			
711-11-123	THERMOPLASTIC, STD, WHITE, SOLID, 12"	925.30 LF	$1.80	$1,665.54
	Comment: Accounts for Roundabout and roundabout connections to/from SW 1st st. SW 21st Ter, PnR, and train station.			
711-11-125	THERMOPLASTIC, STD, WHITE, SOLID, 24"	238.10 LF	$3.30	$785.73
	Comment: Accounts for Roundabout and roundabout connections to/from SW 1st st. SW 21st Ter, PnR, and train station.			
711-11-160	THERMOPLASTIC, STD, WHITE, MESSAGE	11.00 EA	$100.13	$1,101.43
	Comment: Accounts for Roundabout and roundabout connections to/from SW 1st st. SW 21st Ter, PnR, and train station.			
711-11-170	THERMOPLASTIC, STD, WHITE, ARROW	9.00 EA	$55.60	$500.40
	Comment: Accounts for Roundabout and roundabout connections to/from SW 1st st. SW 21st Ter, PnR, and train station.			
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	0.80 GM	$3,888.31	$3,110.65

	Comment: Accounts for Roundabout and roundabout connections to/from SW 1st st. SW 21st Ter, PnR, and train station.			
711-16-201	THERMOPLASTIC, STD-OTH,YELLOW, SOLID, 6"	0.52 GM	$3,797.52	$1,974.71
	Comment: Accounts for Roundabout and roundabout connections to/from SW 1st st. SW 21st Ter, PnR, and train station.			

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	N
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	2
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	2
Skip Stripe No. of Stripes	1

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE/RAISED PAVEMENT MARKERS	57.00 EA	$4.39	$250.23
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	1.69 GM	$893.69	$1,510.34
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	0.42 GM	$378.87	$159.13
	Roadway Component Total			$433,581.61

SHOULDER COMPONENT

User Input Data

Description	Value
Existing Total Outside Shoulder Width L/R	12.25 / 12.25
New Total Outside Shoulder Width L/R	13.25 / 13.25
Total Outside Shoulder Perf. Turf Width L/R	5.00 / 5.00
Sidewalk Width L/R	6.00 / 6.00

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,115.14 LF	$26.44	$29,484.30
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,115.14 LF	$26.44	$29,484.30
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	1,486.85 SY	$40.50	$60,217.42
570-1-1	PERFORMANCE TURF	1,239.04 SY	$3.13	$3,878.20

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,321.52 LF	$26.44	$34,940.99
	Comment: Accounts for Roundabout and roundabout connections to/from SW 1st st. SW 21st Ter, PnR, and train station.			
522-1		497.86 SY	$40.50	$20,163.33

CONCRETE SIDEWALK AND DRIVEWAYS, 4"

Comment: Accounts for Roundabout and roundabout connections to/from SW 1st st. SW 21st Ter, PnR, and train station.

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	2,500.00	LF	$1.87	$4,675.00
104-11	FLOATING TURBIDITY BARRIER	40.00	LF	$15.21	$608.40
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	40.00	LF	$9.50	$380.00
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$2,083.20	$2,083.20
104-18	INLET PROTECTION SYSTEM	15.00	EA	$107.49	$1,612.35
107-1	LITTER REMOVAL	2.00	AC	$41.36	$82.72
107-2	MOWING	2.00	AC	$74.31	$148.62
	Shoulder Component Total				$187,758.84

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	22.00
Performance Turf Width	0.00

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-2-8	CONCRETE CURB, TYPE RA	396.50	LF	$29.45	$11,676.92
	Comment: Accounts for roundabout.				
520-5-11	TRAF SEP CONC-TYPE I, 4' WIDE	259.50	LF	$44.08	$11,438.76
520-70	CONCRETE TRAFFIC SEPARATOR, SP- VAR WIDT	340.30	SY	$85.75	$29,180.72
570-1-2	PERFORMANCE TURF, SOD	1,123.00	SY	$3.76	$4,222.48
	Median Component Total				$56,518.90

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-2	CONC CLASS II, ENDWALLS	7.60	CY	$2,500.00	$19,000.00
425-1-351	INLETS, CURB, TYPE P-5, <10'	16.00	EA	$6,422.69	$102,763.04
425-1-451	INLETS, CURB, TYPE J-5, <10'	6.00	EA	$8,291.67	$49,750.02
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	240.00	LF	$166.55	$39,972.00
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	80.00	LF	$245.14	$19,611.20
570-1-1	PERFORMANCE TURF	64.20	SY	$3.13	$200.95
	Drainage Component Total				$231,297.21

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	10.00	AS	$353.51	$3,535.10
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	2.00	AS	$1,062.02	$2,124.04
700-1-50	SINGLE POST SIGN, RELOCATE	2.00	AS	$288.20	$576.40
700-1-60	SINGLE POST SIGN, REMOVE	10.00	AS	$26.23	$262.30
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	2.00	AS	$4,747.26	$9,494.52
700-2-60	MULTI- POST SIGN, REMOVE	2.00	AS	$545.32	$1,090.64
	Signing Component Total				$17,083.00

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
Spacing	MIN

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	2,300.00	LF	$8.44	$19,412.00
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	440.00	LF	$18.97	$8,346.80
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	16.00	EA	$647.64	$10,362.24
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	8,000.00	LF	$2.48	$19,840.00
715-4-13	LIGHT POLE COMPLETE, F&I-STD, 40'	16.00	EA	$6,064.29	$97,028.64
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	16.00	EA	$611.83	$9,789.28
	Subcomponent Total				$164,778.96

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
715-7-11	LOAD CENTER, F&I, SECONDARY VOLTAGE	1.00	EA	$11,396.80	$11,396.80
	Lighting Component Total				$176,175.76

Sequence 10 Total $1,135,172.50

Date: 5/8/2019 2:43:16 PM

FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: 435513-1-52-01 **Letting Date:** 08/2025

Description: SR-9/I-95 @ SR-842/BROWARD BOULEVARD

District: 04 **County:** 86 BROWARD **Market Area:** 12 **Units:** English
Contract Class: 1 **Lump Sum Project:** N **Design/Build:** N **Project Length:** 0.946 MI

Project Manager: SONNETT

Version 26 Project Grand Total **$136,087,265.75**
Description: 2019 LRE Update

Project Sequences Subtotal **$108,398,138.55**

102-1	Maintenance of Traffic	14.00 %	$15,175,739.40
101-1	Mobilization	10.00 %	$12,357,387.80

Project Sequences Total **$135,931,265.75**

Project Unknowns		0.00 %	$0.00
Justification for high %:	Higher MOT and Mobilization percentages used due to new Bridge construction over I-95 as well as I-95 widening at all braided ramp touch down points.		
Design/Build		0.00 %	$0.00

Non-Bid Components:

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
999-16	PARTNERING (DO NOT BID)	2.00	LS	$3,000.00	$6,000.00
999-25	INITIAL CONTINGENCY AMOUNT (DO NOT BID)		LS	$150,000.00	$150,000.00

Project Non-Bid Subtotal **$156,000.00**

Version 26 Project Grand Total **$136,087,265.75**

Appendix D

Value Engineering Report

Value Engineering
For Transportation Improvements

I-95 (SR 9) Interchange at Broward Boulevard

Value Engineering Study Draft Report

FM Number:	435516-1-22-02
Fed. Aid Project:	Yes
Project Description:	I-95 (SR 9) Interchange at Broward Boulevard
Study Dates:	January 22 – 26, 2018

Project Development Phase			**Study Identification Number**								
PD&E	Design	Other							VE Item No.		
HDR, Inc.									Yr.	Dist.	No.
									17	004	04

This study has been performed in accordance with current applicable FDOT Value Engineering Procedures and Techniques

Richard L. Johnson, CVS No. 20030201, PE No. 38681

February ___, 2018

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EXECUTIVE SUMMARY 1

1.1 INTRODUCTION

A Value Engineering (VE) Study was held, during January 22 – 26, 2018, using the VE methodology to improve the I-95 (SR 9) Interchange at Broward Boulevard (SR 842) project. The VE study analyzed value improvements for improving the traffic movements in eastern central Broward County. The purpose of this study is to identify short-term and long-term needs and develop design concepts on Broward Boulevard and I-95, improve interchange operations, and reduce congestion, at the study interchange through the 2040 design year.

The Interchange of I-95 at Broward Boulevard is located between the Sunrise Boulevard Interchange (one mile to the north) and the Davie Boulevard Interchange (one mile to the south). The South Florida Rail Corridor (SFRC)/CSX Railroad is adjacent to and runs parallel along the west side of I-95 in this area. The limits for this report extend from just south of Davie Boulevard to just south of Sunrise Boulevard along I-95 and from NW 24th Ave. to NW 18th Ave. along Broward Boulevard SR-842/Broward Boulevard is a six-lane urban divided roadway with a raised median within the vicinity of the I-95 Interchange. It provides the main entry way to the downtown Fort Lauderdale Central Business District from I-95 and the east-west connection between US-1 and SR-817/University Drive in the City of Plantation.

There is a Park-and-Ride lot located within the interchange area. The Park-and-Ride lot includes the provision of 794 parking spaces throughout five parking lots, Spaces in Lot 5 are designated for Amtrak and Tri-Rail parking only while the spaces in Lots 1-4 are available for any purpose, including car pools and 95 Express Bus. There are no designated bicycle facilities within the Park-and-Ride lot and minimal sidewalk facilities. Access to the Park-and-Ride lots is provided via Broward Boulevard and I-95. Egress and ingress for Broward Boulevard is provided via a series of intersections sometimes requiring drivers coming from the south to circulate through the northern parking areas. Egress and ingress from I-95 is provided via single high occupancy vehicle (HOV) ramps. Broward Boulevard's elevation over I-95 creates vertical access challenges for transit users, bicyclists and pedestrians looking to connect with the transit services available in the Park-and-Ride and Transit Station area northwest and southwest of the interchange. As a result of these challenges and due to its location as the entry way to downtown Fort Lauderdale, this interchange has been the subject of a variety of studies including the City of Fort Lauderdale's Gateway Vision and FDOT's Broward Boulevard Transit Corridor Study. Each of these studies has evaluated these challenges and recommended improvements to the west side of the interchange where connections to Tri-Rail and the 95 Express Bus services are offered.

The project location may be found on **Figure 1.1–1 Project Location Map**. The typical sections and plan and profile drawings for the roadway alternatives were shown on the concept drawings included in the Project Development and Environment (PD&E) documents. By building this project, Broward County and Florida Department of Transportation (FDOT) will improve mobility in the region and the level of service for the I-95 mainline and the Broward Boulevard corridor. The project will provide improved level of service and operations in the area.

Table 1.1–1 Preliminary Cost Estimate on page 4 shows the project preliminary estimated construction costs for the improvements for the alternative being studied. The proposed improvements are to enhance regional mobility and level of service in the design year of 2040.

1.2 GOALS AND OBJECTIVES

The objective of the study was to identify opportunities and recommend concepts that may improve value in terms of capital cost, constructability, maintenance of traffic, and the basic functional requirements of the project. This report documents the value engineering analysis performed to support decisions related to the planned project alternatives. Additionally, it summarizes existing conditions, documents the purpose and need for the project as well as documents other engineering, environmental, and social data related to PD&E concept.

The basic project functions are to improve level of service for the interchange, avoid spillback, improve connectivity and improve traffic operations within the regional transportation system. As shown in **Section 4**,

the Functional Analysis System Techniques (FAST) Diagram illustrates the functions as determined by the VE team.

1.3 RESULTS OF THE STUDY

The VE team generated 13 ideas during the Creative Ideas phase of the VE Job Plan. The ideas were then evaluated based on the evaluation criteria for this project. The object of this evaluation was to identify ideas with the most promise to achieve savings while preserving functions or improving operations.

The team began the evaluation process of scoring the PD&E documents concept and the individual creative ideas. During this process it was agreed that we had various ideas, but certain ideas having the greatest potential value improvement were carried forward for further development. The remaining ideas either became design suggestions (many specific to a particular component within the project) or were eliminated as duplicate, not appropriate or improbable for acceptance. The VE team ultimately categorized five ideas as recommendations for the designers to consider. The developed ideas either maintain or enhance the required functions while improving overall costs, constructability, minimizing time, minimizing utility conflicts and right-of-way issues, minimizing environmental impacts, as well as addressing regional connectivity issues, aesthetics and drainage. The ideas and how they rated on a weighted scoring evaluation are listed in the table in **Section 6**. Those ideas that were eliminated are shown with strikeout font.

The design suggestions identified by the VE team are shown in **Section 6**. The VE team presents design suggestions for FDOT's consideration. No specific action is normally required to accept or not accept the suggestions, though it is often helpful, for documentation purposes, to formally list those suggestions that will be acted upon by FDOT.

1.4 RECOMMENDED ALTERNATIVES

The recommendations for further consideration are shown in **Table 1.4-1**, **Summary of Highest Rated Recommendations.** Potential cost savings are shown in present day dollars.

The recommendations in **Table 1.4 – 1** indicate the anticipated initial cost, operation and maintenance cost, future cost and Life Cycle Cost (costs shown indicate initial capital costs as the LCC are similar to the original design) of the proposed recommendations. The Present Worth (PW) Life Cycle Cost also includes the initial cost, and the other above mentioned costs over the anticipated useful life of the facility. Acceptance of these recommendations would improve the value and be incorporated in the design of the facility. These recommendations appear to be the most cost effective way to provide the required functions. Some of the recommendations cannot be taken with others, since some are mutually exclusive recommendations.

1.5 MANAGEMENT ACCEPTANCE & IMPLEMENTATION

Management action on each of the recommendations taken at the subsequent resolution meeting will be included in **Table 1.4 – 1** in the "Management Action" column. The FDOT Project Manager must ensure that all accepted recommendations are implemented and all pending actions are resolved for inclusion in the project design. Close coordination with the District Value Administrator is encouraged to insure timely resolution of management action.

Figure 1.1 – 1
Project Location Map

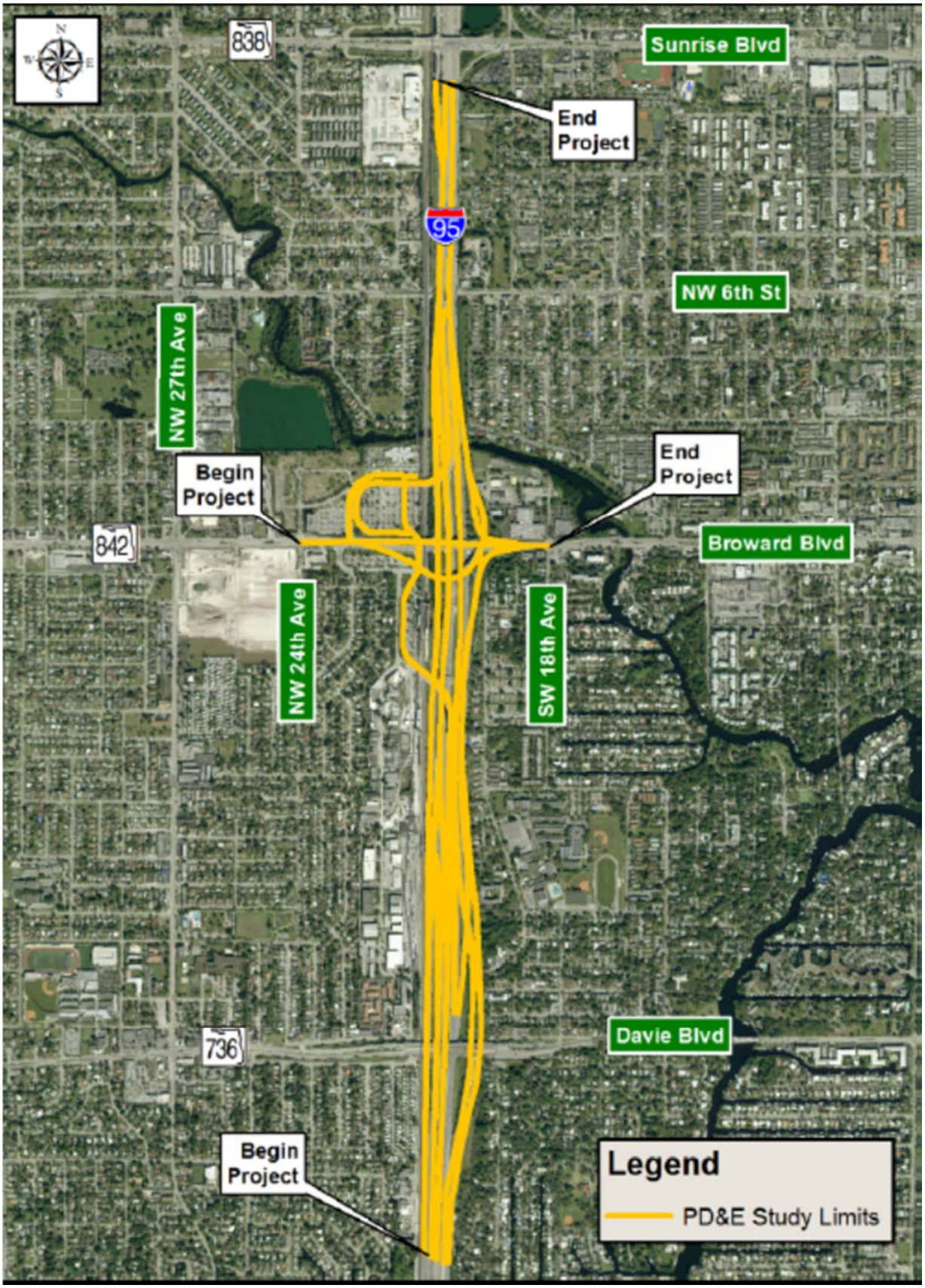


Table 1.1 – 1

Preliminary Cost Estimate
PD&E Alternative 2B

Construction Item	Total Costs
Earthwork	$2,133,952.73
Roadway	$9,060,425.79
Shoulder	$1,775,496.28
Median	$169,786.95
Drainage	$2,879,622.00
Bridges	$42,849,694.44
Retaining Walls	$13,418,682.50
Signing	$1,843,993.06
Lighting	$1,278,835.01
Signalization	$494,571.69
Landscaping	$366,165.46
ITS	$237,690.30
Architectural	$5,000,046.33
Total Construction	**$76,508,916.21**
MOT (14%)	$11,411,254.76
Subtotal	**$92,920,217.30**
Mobilization (10%)	$9,292,021.73
Contingency	$150,000.00
Subtotal	**$102,362,239.03**
Right of Way	
Partnering	$6,000.00
Disbutes Review Board	$66,000.00
Total	**$102,434,239.03**

Reference: Preliminary Cost Estimate prepared by HDR, Inc., dated June 1, 2017

TABLE 1.4 – 1 SUMMARY OF HIGHEST RATED RECOMMENDATIONS				
		PRESENT WORTH (PW) OF COST (FUTURE COST)		
Rec. No.	**Description**	**Management Action**	**Comments**	**Potential Cost Savings (Value Added)**
5	Widen the EB Broward Boulevard to NB I-95 and diverge to a ramp SB I-95 to Express lanes and make the Broward Boulevard right turns to only go to the SB I-95 general use lanes. Segregate the triple lefts with one lane with delineators to go to a braided ramp 200 ft. south of Broward Boulevard and the double lefts can only go to the general use lanes			($7,738,000)
5A	Maintain the Broward Boulevard right turns to only go to the SB I-95 general use lanes. Segregate the triple lefts with one lane with delineators to go to a braided ramp 200 ft. south of Broward Boulevard and the double lefts can only go to the general use lanes			($17,000)
7	Utilize all existing Park' & Ride ramps via a new intersection on Broward Boulevard just south of NW 22nd Ave.; all general use lanes are either egress or ingress for I-95 general use lanes. City to vacate NW 22nd Ave.			$48,962,000
7A	If Idea No. 7 is accepted, join Sunrise Boulevard to SB I-95 and Broward Boulevard traffic into a C-D roadway to avoid weaving at I-95			($2,426,000)
8	Provide a canopy over the Transit station platform			($627,000)
10	No sidewalk on the South side, convey all pedestrians along the North sidewalk on Broward Boulevard Adding an accessible ramp along the side of Broward. Widening the existing bike lanes along the south side of Broward			(740,000)

Management Action Legend: A=Accepted, NA=Not Accepted, FS=Further Study

VALUE ENGINEERING METHODOLOGY 2

2.1 GENERAL

This section describes the value analysis procedure used during the VE study. A systematic approach was used in the VE study and the key procedures involved were organized into three distinct parts: 1) pre-study preparations, 2) VE workshop study, and 3) post-study.

2.2 PRE-STUDY PREPARATIONS

Pre-study preparations for the VE effort consisted of scheduling study participants and tasks; reviews of documents; gathering necessary background information on the project; and compiling project data into a cost model. Information relating to the design, construction, and operation of the facility is important as it forms the basis of comparison for the study effort. Information relating to funding, project planning, operating needs, systems evaluations, basis of cost, production scheduling, and construction of the facility was also a part of the analysis.

2.3 VE WORKSHOP STUDY

The VE workshop was a five-day effort. During the workshop, the VE job plan was followed. The job plan guided the search for high value areas in the project and included procedures for developing alternative solutions for consideration while at the same time considering efficiency. It includes these phases:

- Information Gathering Phase
- Function Identification and Cost Analysis Phase
- Creative Phase
- Evaluation Phase
- Development Phase
- Presentation and Reporting Phase

2.3.1 Information Phase

At the beginning of the study, the conditions and decisions that have influenced the development of the project must be reviewed and understood. For this reason, the consultant project manager provided design information about the project to the VE team. Following the presentation, the VE team discussed the project using the documents listed in **Section 3.3**.

2.3.2 Function Identification and Cost Analysis Phase

Based on the preliminary cost estimate, historical and background data, a cost model was developed for this project organized by major construction elements. It was used to distribute costs by project element in order to serve as a basis for alternative functional categorization. The VE team identified the functions of the various project elements and subsystems and created a Function Analysis System Technique Diagram (FAST) to display the relationships of the functions.

2.3.3 Creative Phase

This VE study phase involved the creation and listing of ideas. During this phase, the VE team developed as many ideas as possible to provide a creative atmosphere and to help team members to "think outside the box." Judgment of the ideas was restricted at this point to insure vocal critics did not inhibit creativity. The VE team was looking for a large quantity of ideas and association of ideas.

FDOT and the design team may wish to review the creative design suggestions that are listed in **Section 6**, because they may contain ideas, which can be further evaluated for potential use in the design.

2.3.4 Evaluation Phase

During this phase of the workshop, the VE team judged the ideas generated during the creative phase. Advantages and disadvantages of each idea were discussed and a matrix developed to help determine the highest-ranking ideas. Ideas found to be irrelevant or not worthy of additional study were discarded. Those that represented the greatest potential for cost savings, and function or performance improvement to the project were "carried forward" for further development.

The creative listing was re-evaluated frequently during the process of developing ideas. As the relationship between creative ideas became more clearly defined, their importance and ratings may have changed, or they may have been combined into a single idea. For these reasons, some of the originally high-rated ideas may not have been developed.

2.3.5 Development Phase

During the development phase, each highly rated idea was expanded into a workable solution. The development consisted of a description of the idea, life cycle cost comparisons, where applicable, and a descriptive evaluation of the advantages and disadvantages of the proposed ideas. Each idea was written with a brief narrative to compare the original design to the proposed change. Sketches and design calculations, where appropriate, were also prepared in this part of the study. The developed VE ideas are summarized in the section entitled **Section 7 – Recommendations**.

2.4 POST STUDY

The post-study portion of the VE study includes the draft and final preparation of this Value Engineering Study Report and the discussions and resolution meetings with FDOT personnel. The Planning and Environmental Management team should analyze each alternative and prepare a short response, recommending incorporating the idea into the project, offering modifications before implementation, or presenting reasons for rejection. The VE team is available for consultation after the ideas are reviewed. Please do not hesitate to call on us for clarification or further information for considerations to implement any of the presented ideas.

2.4.1 Presentation and Reporting Phase

The final phase of the VE Study began with the presentation of the ideas on the last day of the VE Study. The VE team screened the VE ideas before draft copies of the report were prepared. The initial VE ideas were arranged in the order indicated to facilitate cross-referencing to the final recommendations for revision to the Contract Documents.

2.4.2 Final Report

The acceptance or rejection of ideas described in this report is subject to FDOT's review and approval. The VE team is available to address any final draft report comments for incorporation into the final report.

WORKSHOP PARTICIPANTS AND PROJECT INFORMATION 3

3.1 PARTICIPANTS

On January 22, 2018, representatives from HDR, Inc., presented an overview of the projects in the PD&E documents for the interchange with I-95 at Broward Boulevard. The purpose of this meeting was to acquaint the study team with the overall project and what the main areas the VE team needed to focus on during this VE study.

The VE facilitator also reviewed and explained the value engineering improvement study agenda. He acquainted the team with the goals for the study based upon the study methodology that would be applied to improve the project. The study team included the following experts who participated in the study:

Participant Name	Role	Affiliation
Claudia Calvo, PE	Drainage	FDOT District 4
William Grey, PE	Construction	FDOT District 4
Rayner Abreu	Right of Way	FDOT District 4
Yenny Soca	Roadway Design	FDOT District 4
Garret O'Brady, EI	Roadway Design	FDOT District 4
Will Isidort, EI	Structures	FDOT District 4
Alberto Sardinas	Structures	FDOT District 4
Brian Bosket	Maintenance	FDOT District 4
Doug Norris, PE	Roadway Design	Stantec
Eugene Khashper	District Value Administrator	FDOT District 4
Rick Johnson, PE, CVS	VE Team Leader	PMA Consultants LLC
Francisco Cruz, PE, AVS, PMP	Assistant VE Team Leader	PMA Consultants LLC

3.2 PROJECT INFORMATION

The purpose of the project orientation meeting, on January 22, 2018, in addition to being an integral part of the Information Gathering Phase of the VE study, was to bring the VE team "up-to-speed" regarding the overall project scope.

3.3 LIST OF VE STUDY MATERIAL REVIEWED

1. Second Alternatives Public Workshop Presentation, Project Development and Environment (PD&E) Study, SR-9/I-95 @ SR842/Broward Boulevard Interchange Improvements, dated November 14, 2017.
2. Alternatives Public Workshop #2 Summary, Project Development and Environment (PD&E) Study, SR-9/I-95 @ SR842/Broward Boulevard Interchange Improvements, dated November 20, 2017.
3. Broward Boulevard Project Development and Environment (PD&E) Study, Signing and Paving Markings (S&PM), Dual Left, dated December 20, 2017.
4. Broward Boulevard Project Development and Environment (PD&E) Study, Signing and Paving Markings (S&PM), Triple Left, dated December 20, 2017.
5. Draft System Interchange Modification Report, Project Development and Environment (PD&E) Study, SR-9/I-95 @ SR842/Broward Boulevard Interchange, created on December 4, 2017.
6. Riverbend Warehouse Overall Site Plan, prepared by Flynn Engineering Services, PA, Sheet No. C1, plot date January 24, 2017.
7. Risk Register and Pre-Response Results, prepared by HRD, Inc. dated January 16, 2018.
8. FDOT Long Range Estimates, Alternative 2B, prepared by HDR, Inc., dated June 1, 2017.
9. Proposed Interchange Typical Section, prepared by HDR, Inc.., undated.

10. Various Exhibit Boards for Alternatives 1, 2a, and 2b, prepared by HDR, Inc., undated.

3.4 SUMMARY OF GENERAL PROJECT INPUT - OBJECTIVES, POLICIES, DIRECTIVES, CONSTRAINTS, CONDITIONS & CONSIDERATIONS

The following is a summary of general project input, including the goals, objectives, directives, policies, constraints, conditions and considerations presented to the study team. Any "element" specific input is indicated by parentheses around the elements, disciplines and interests (i.e., right-of-way, roadway, environmental). Representatives from FDOT and the design team provided a project background, on the first day of the study.

3.4.1 Project Functions, Goals & Objectives (what the project should do as determined at the kickoff meeting and subsequent Workshops):

1. Improve LOS
2. Increase Capacity
3. Construct Improvements
4. Acquire Property
5. Design Project
6. Recommend Solutions
7. Study Alternatives
8. Define Needs
9. Add Lanes
10. Connect Roadways
11. Span Obstacles
12. Reduce Travel-Time
13. Improve Connectivity
14. Maintain Traffic
15. Map Property
16. Appraise Property
17. Acquire Property
18. Clear Property
19. Certify Property
20. Illuminate Roadway
21. Redirect Water
22. Prepare Drawings
23. Provide Refuge
24. Inform Public
25. Move Traffic
26. Verify Constraints
27. Analyze Data
28. Evaluate Costs
29. Identify Constraints
30. Mitigate Impacts
31. Treat Stormwater
32. Accommodate Utilities
33. Satisfy Community
34. Minimize Environmental Impacts
35. Manage Access
36. Anticipate Future Growth
37. Minimize Costs
38. Accommodate Traffic
39. Ease of Maintenance
40. Establish Grade
41. Divide Traffic
42. Provide Refuge
43. Control Traffic
44. Redirect Water
45. Reduce Footprint
46. Illuminate Roadway
47. Beautify Roadway
48. Inform Drivers
49. Distinguish Area
50. Start Work
51. Cover Unforseen
52. Develop Relationships
53. Settle Disputes

These functions were used by the VE team to create/brainstorm new ideas for potential improvement to the project.

3.4.2 Project Policies & Directives: (documented things the project must or must not do)

1. The project shall meet economic, engineering design, environmental and social/cultural criteria requirements
2. Meet the goals of the Long Range Transportation Plans for future developments

3.4.3 General Project Constraints: (unchangeable project restrictions)

1. Tri-Rail and Amtrak Railroad
2. Amtrak Station is eligible for the Historic Registry
3. Reverend Samuel Delevoe Memorial Park is 4(f)
4. Transit envelope on Broward Blvd.

3.4.4 General Project Conditions & Considerations:

1. Refer to the PD&E documents and backup documentation prepared by HDR, Inc.

3.4.5 Site Review Comments and other observations:

1. Add lanes to the flyovers and diverge to add free flow movements.
2. Add a westbound Broward to a southbound I-95
3. The park and ride ramp geometry don't seem to fit
4. Putting the transit station under Broward requires a large area.
5. Is the C-D system on the east side the best use of the space since it is really an extended exit ramp?

3.5 QUALITATIVE RISK ANALYSIS

The team received a copy of the PD&E consultants risk register and prepared a qualitative risk analysis of initial perceived risks that would be addressed during the evaluation and development phases of the study. The risk map below shows what the team believed the occurrence probability might be and the relative impact the risk may have on the project.

The team reviewed 14 potential threats and two opportunities that were identified and mapped each one based on the anticipated impact and probability, an iterative algorithm was run to rank each of the risks as the team perceived them. That ranking on the following pages identify the risks with the highest level of concern regarding the project.

Figure 3.5 – 1 Threats Map

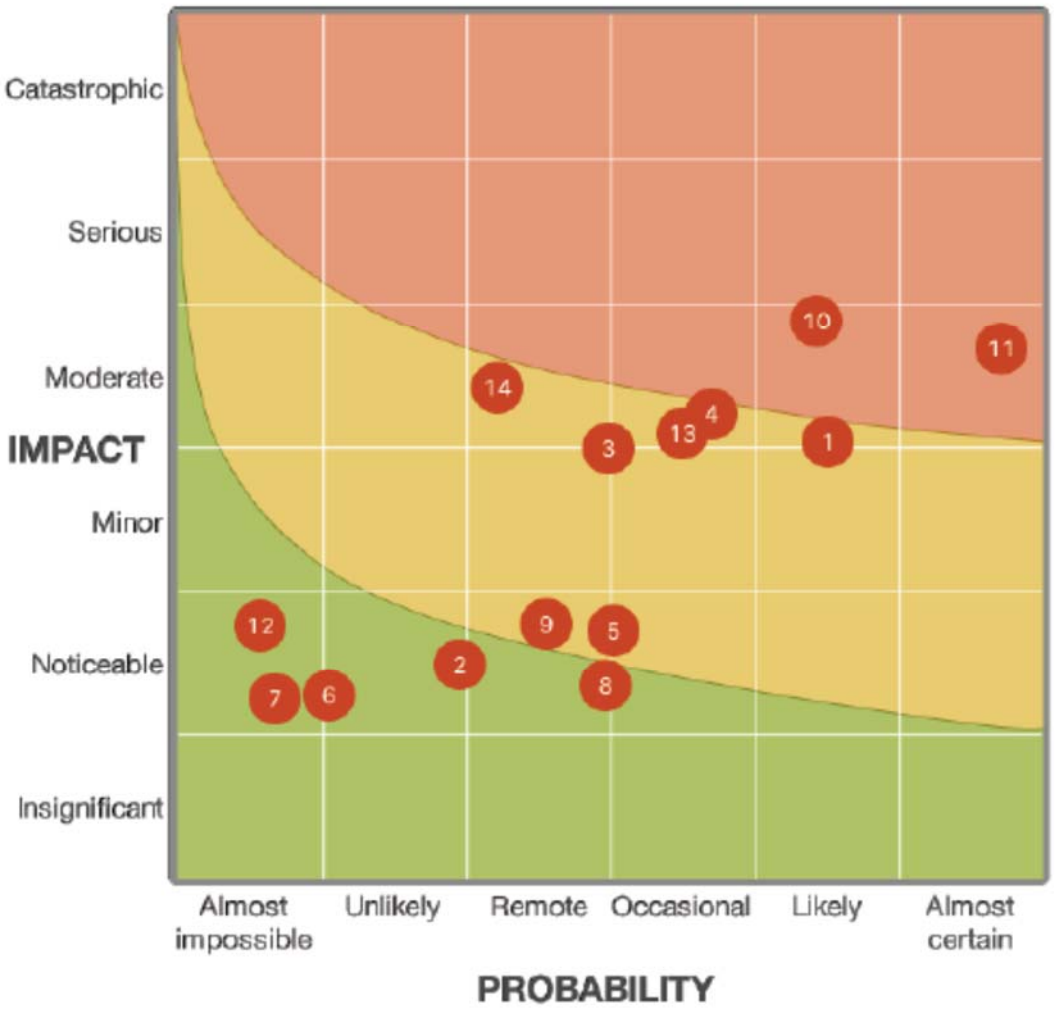


Table 3.5 – 1 Project Threats Ranking

Project Risk List		
Risk ID	**Description**	**Severity**
1	Weather Related Delays	13.6
2	Interference from other projects	3.1
3	Different Site Conditions	9
4	Changes in Design Standards	12
5	Negative Community Impacts Cause Delays	5.4
6	Unanticipated Cultural and Archaeological Findings	1.5
7	Water Quantity and Quality Issues	1
8	Culvert Replacement	4.2
9	Noise Mitigation	4.7
10	Noise Walls Needed in Different Locations	17
11	Design Constraints Require Additional ROW Related to Drainage	20.7
12	Coordination with Other Agencies	1.2
13	Bridge Unit Cost may be Low	10.8
14	Additional ROW may be needed if the project team decides to modify NW and SW 22nd Ave	7.7

Figure 3.5 – 2 Opportunities Map

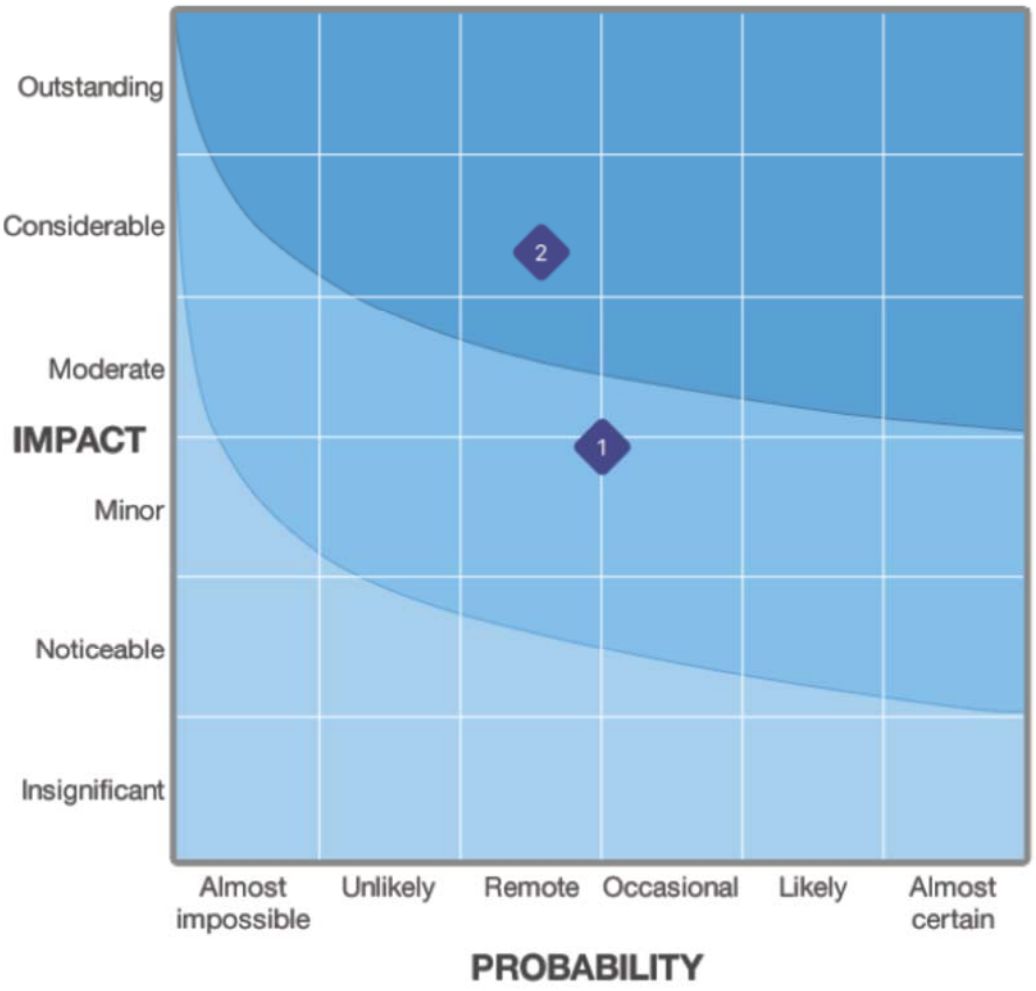


Table 3.5 – 1 Project Opportunities Ranking

Project Opportunity List		
Opp ID	**Description**	**Severity**
1	Utilities Cost Programmed are Too Conservative	8.9
2	The use of the HOV ramps for Express Lanes could potentially reduce the traffic volume	11.2

3.5.1 Options Analysis

The options developed by the VE Team can generally be characterized in three categories:

1) Concepts that can reduce the footprint (right of way)
2) Improvements on Preferred Alternative 2B that may minimize costs and satisfy the function to eliminate spillback
3) Avoid throw away work due to future planned improvements.

The benefits of reducing the footprint are multifaceted, as the work may be less disruptive to the commercial corridor and residential neighborhoods, will require less roadway reconstruction, has less risk associated with acquiring right of way with contamination issues and is more cost effective due to the lower level of complexity. The VE team and the current PD&E team believe there are multiple viable options to limit the right of way needs for the interchange, roadway and the flyover(s).

Accordingly, much effort was spent by the VE team evaluating and developing options to improve the Alternative 2b concept. Within those recommendations, some can be considered refinements to the plan, and others more substantive to the final condition and the overall cost, schedule and construction complexity of the work. The goal(s) of the alterantives is to address:

1) Eliminate the spillback that negatively effects level of service on the I-95 mainline.
2) Minimizing construction work areas at the interchange and the impacts on residents and businesses.
3) Improve Broward Boulevard traffic operations.
4) Improve access to and from NW 22nd Avenue.

ECONOMIC DATA, COST MODEL AND ESTIMATES 4

4.1 ECONOMIC DATA

The study team developed economic criteria used for evaluation with information gathered from the PD&E documents. To express costs in a meaningful manner, the cost comparisons associated with alternatives are presented on the basis of total Life Cycle Cost and discounted present worth. Project period interest rates are based on the following parameters:

Year of Analysis:	2017
Economic Planning Life:	20 years starting in 2020
Discount Rate/Interest:	5.00%
Inflation/Escalation Rate:	3.00%

The Preliminary PD&E Cost Estimate was used by the team for the major construction elements and right of way costs were developed by HDR, Inc., and the FDOT Right of Way Estimating team. The VE team had Long Range Estimate (LRE) costs for the Alternative 2B. The cost for the roadway and interchange improvements is $102,362,239.03 and no right of way costs. Soft cost for partnering sessions and the disputes review board is estimated at $72,000.

Table 4.1 – 1
Preliminary Cost Estimate
PD&E Alternative 2B

Construction Item	Sequence 1	Sequence 2	Sequence 3	Sequence 4	Sequence 5	Sequence 6	Sequence 7	Sequence 8	Sequence 9	Total Costs	Function
Earthwork	$448,470.00	$92,256.50	$174,994.20	$174,404.90	$185,391.70	$148,656.50	$560,444.11	$146,584.42	$202,750.40	$2,133,952.73	Establish Grade
Roadway	$885,059.51	$182,677.11	$515,073.91	$322,061.70	$253,577.91	$580,158.50	$3,093,441.97	$3,228,375.18		$9,060,425.79	Move Traffic
Shoulder	$457,578.69	$69,969.65	$94,654.74	$160,317.36	$105,877.39	$182,029.25	$442,284.82	$262,784.38		$1,775,496.28	Provide Refuge
Median	$144,721.42						$25,065.53			$169,786.95	Diuvide Traffic
Drainage	$497,337.00	$284,980.00	$417,830.00	$528,120.00	$395,270.00	$469,270.00	$116,320.00	$170,495.00		$2,879,622.00	Redirect Water
Bridges	$24,261,506.39		$5,757,560.28	$1,258,228.25	$3,423,977.45	$6,143,961.48	$2,004,460.59			$42,849,694.44	Span Obstacles
Retaining Walls	$769,897.50	$1,709,122.50	$2,239,685.00	$2,200,798.75	$2,300,141.25	$4,199,037.50				$13,418,682.50	Reduce Footprint
Signing	$1,349,438.39	$10,564.54	$18,118.40	$20,794.56	$11,568.10	$20,565.84	$390,006.76	$22,936.47		$1,843,993.06	Inform Public
Lighting	$257,767.05	$74,047.98	$104,597.88	$132,724.81	$96,532.96	$115,697.97	$470,615.59	$26,850.77		$1,278,835.01	Illuminate Roadway
Signalization	$494,571.69									$494,571.69	Control Traffic
Landscaping								$366,165.46		$366,165.46	Beautify Roadway
ITS	$237,690.30									$237,690.30	Inform Drivers
Architectural								$5,000,046.33		$5,000,046.33	Distinguish Area
Total Construction	**$29,804,037.94**	**$2,423,618.28**	**$9,322,514.41**	**$4,797,450.33**	**$6,772,336.76**	**$11,859,377.04**	**$7,102,639.37**	**$9,224,238.01**	**$202,750.40**	**$76,508,916.21**	
MOT (14%)	$4,172,565.31	$339,306.56	$1,305,152.02	$671,643.05	$948,127.15	$1,660,312.79	$994,369.51	$1,291,393.32	$28,385.06	$11,411,254.76	Maintain Traffic
Subtotal	**$33,976,603.25**	**$2,762,924.84**	**$10,627,666.43**	**$5,469,093.38**	**$7,720,463.91**	**$13,519,689.83**	**$8,097,008.88**	**$10,515,631.33**	**$231,135.46**	**$92,920,217.30**	
Mobilization (10%)	$3,397,660.33	$276,292.48	$1,062,766.64	$546,909.34	$772,046.39	$1,351,968.98	$809,700.89	$1,051,563.13	$23,113.55	$9,292,021.73	Start Work
Contingency	$16,666.67	$16,666.67	$16,666.67	$16,666.67	$16,666.67	$16,666.67	$16,666.67	$16,666.67	$16,666.67	$150,000.00	Cover Unforseen
Subtotal	**$37,390,930.24**	**$3,055,883.99**	**$11,707,099.74**	**$6,032,669.38**	**$8,509,176.96**	**$14,888,325.47**	**$8,923,376.44**	**$11,583,861.13**	**$270,915.67**	**$102,362,239.03**	
Right of Way											Acquire Property
Partnering										$6,000.00	Develop Relationships
Disbutes Review Board										$66,000.00	Settle Disputes
Total	**$37,390,930.24**	**$3,055,883.99**	**$11,707,099.74**	**$6,032,669.38**	**$8,509,176.96**	**$14,888,325.47**	**$8,923,376.44**	**$11,583,861.13**	**$270,915.67**	**$102,434,239.03**	

Reference: Preliminary Cost Estimate, prepared by HDR, Inc., dated June 1, 2017

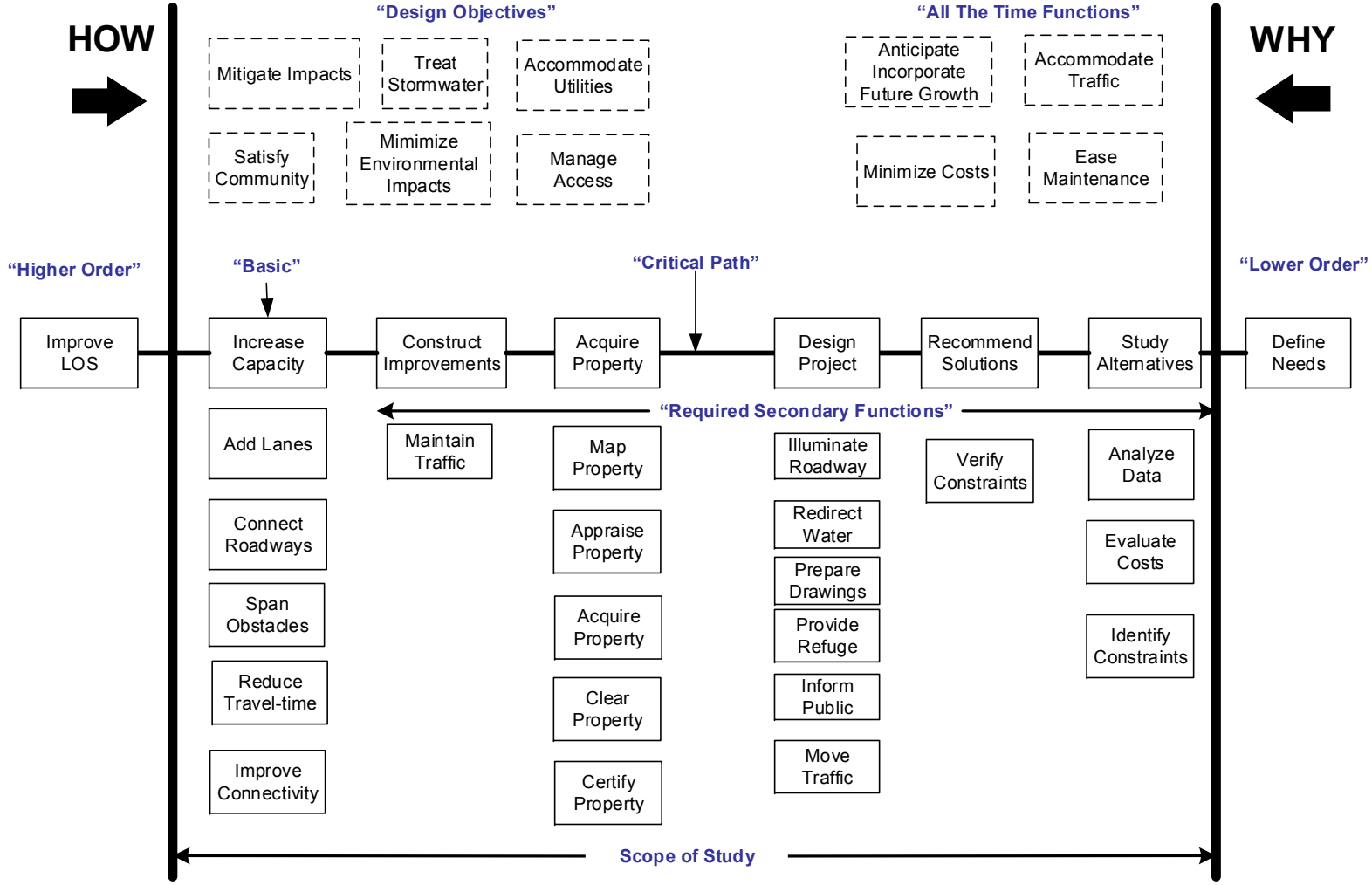
FUNCTION ANALYSIS AND FAST DIAGRAM 5

This project's function analysis was reviewed and developed by the team to define the requirements for the overall project (and each project element, if required) and to ensure that the VE team had a complete and thorough understanding of the functions (basic and others) needed to satisfy the project requirements. The primary Function Analysis System Technique (FAST) Diagram for the project is included. The development of FAST diagrams help stimulate team members to think in terms of required functions, not just normal solutions, to enhance their creative idea development. The project's primary tasks, the critical path functions, the project's primary basic functions and other required functions that must be satisfied were identified and are indicated in the report.

A function analysis was prepared to determine the basic function of the overall project and each area shown in the cost model. Functional Analysis is a means of evaluating the functions of each element to see if the expenditures for each of those elements actually provide the requirements of the process, or if there are disproportionate amounts of money being proposed to be spent for support functions. These elements add cost to the final product, but have a relatively low worth to the basic function. This creates a high cost-to-worth ratio.

A FAST diagram was developed to identify and display the critical functions path for the overall project. The basic and supporting secondary functions are illustrated on the following FAST Diagram.

Figure 5.1-1 – FAST Diagram
I-95 (SR 9) Interchange at Broward Boulevard



EVALUATION 6

During the creative phase the project team generated numerous ideas, alternative proposals and/or recommendations for each required function using conventional brainstorming techniques that are recorded on the following pages. The project team discussed these ideas and determined the evaluation criteria. The VE team identified nine weighted evaluation criteria that included Level of Service, Capital Cost, Environmental Impacts, Stakeholder Acceptance, Right of Way Impacts, Constructability, Future Maintenance, Access Management, and Pedestrian Friendliness. The evaluation criteria were assigned a weighted value from 1 to 9 based on a VE team consensus on the importance of each item. Criteria with the most importance received a 9-weight and the least important received a 1-weight. The ideas were then individually discussed and given a score, on a scale of 1 to 5 with 1 being the least beneficial and 5 most beneficial. The score for each item is multiplied by the weighted criteria value and each multiplication product is added to obtain a total score for the idea.

Table 6.1 – 1 includes a list of ideas that were generated during the creative phase and each idea's score. **Table 6.1 – 2** illustrates the weighted values for the evaluation criteria and **Table 6.1 – 3** shows the evaluation matrix for idea ranking total scores for all ideas carried forward. The ideas that scored equal to or greater than the original design concept total score were sufficiently rated for further development. The ideas in the table with strike-through were not developed because they were combined with other ideas, not feasible, or were eliminated from consideration for other reasons.

There were a total of 13 creative ideas and 9 that were evaluated and scored. Of the 13 original ideas one was added during development when it was discovered that 7A would be viable if idea number was accepted. A fourteenth idea (No. 5A) was added based on a request at the VE recommendations presentation to consider it. The VE team discussed each of the evaluated ideas with the PD&E project manager during a mid-point review meeting on Wednesday, January 24, 2018. The VE team and the project manager discussed each idea before developing the final group of ideas for final development and analysis.

The write-ups for the developed ideas are in **Section 7**. The tables that follow show the original 13 original ideas and those that scored high enough for development that emerged during the mid-point review, with the ideas that survived the evaluation, analysis and development phases of the study becoming viable recommendations for value improvements. Six ideas were analyzed and developed as viable recommendations for value improvements. During the evaluation process the VE team identified one creative idea as a design suggestion for the PD&E consultants to consider. Ideas that became design suggestions or design questions are designated as "DS" on the evaluation worksheets. The design suggestion identified by the VE team is:

DS-1 Consider some containment system to protect transit passengers from Broward Blvd. traffic

No specific action is normally required to accept or not accept the suggestions, though it is often helpful, for documentation purposes, to formally list those suggestions that will be acted upon by the FDOT. Readers are encouraged to review the Creative Idea Listing and Evaluation Worksheets that follow, since they may suggest additional ideas that can be applied to the design or construction.

TABLE 6.1 –1
Value Engineering Study Ideas

Idea No.	Ideas	LOS	Capital Costs	Environ. Impacts	Stakeholder Acceptance	Construct-ability	Right of Way Impacts	Future Maintenance	Access Management	Pedestrian Friendliness
	Original Concept									
	PD&E Alternative	3	3	3	3	3	3	3	3	3
	I-95 Ramps/Operation (Move Traffic)									
1	Modify EB to NB Flyover to make it EB to SB into general use lanes and demo the EB to NB portion of the ramp. The Broward Blvd. turns will be Express lanes only and add a braid 200 ft. south. Also, flyover for the WB Broward to SB I-95 general use lanes. An at grade EB to NB left turn will be added as well.	3	1	3	2	2	3	3	4	3.5
2	~~Add an egress ramp South of Davie Blvd. from the express lanes to the general use lanes 1500 ft. south of the gore for the braided ramp from the general use lanes to the C-D System to allow access to the exit ramp to Broward Blvd.~~									
3	Add an additional lane going SB towards Davie Blvd. and widen the braided ramp from the C-D lanes to the general use lane and extend the added lane over the general use lanes to the Express lanes landing before Davie Blvd.	3.5	2.75	3	3.5	2	3	2	3	3
4	Widen the EB Broward Blvd. to NB I-95 and diverge to a ramp SB I-95 to Express lanes and make the Broward Blvd. turns to only go to the SB I-95 general use lanes. Add a Broward Blvd. cloverleaf flyover WB to southbound Express lanes.	4.5	1.5	2.5	4	2	3	2	3	3
5	Widen the EB Broward Blvd. to NB I-95 and diverge to a ramp SB I-95 to Express lanes and make the Broward Blvd. right turns to only go to the SB I-95 general use lanes. Segregate the triple lefts with one lane with delineators to go to a braided ramp 200 ft. south of Broward Blvd and the double lefts can only go to the general use lanes	4	2.75	3	3.5	2.5	3	2.5	3	3
6	Add a separate ramp from EB Broward Blvd. to tie into the SB Express ramp by the RR station. EB Broward to SB I-95 right turn only at the ramp. WB Broward Blvd. triple lefts are separated by delineators to SB Express lanes by a braided ramp 200 ft. south of Broward Blvd. The other two left turn lanes are only for SB I-95.	4	2.75	3	3.5	2.75	3	2.5	3	2
7	Utilize all existing Park' & Ride ramps via a new intersection on Broward Blvd. just south of NW 22nd Ave.; all general use lanes are either egress or ingress for I-95 general use lanes. City to vacate NW 22nd Ave.	4	5	3	2.5	4.75	1	4	2.75	3.5
7A	If Idea No. 7 is accepted, join Sunrise Blvd.to SB I-95 and Broward Blvd. traffic into a C-D roadway to avoid weaving at I-95.									
	Broward Boulevard Transit Station (Move Traffic)									
8	Provide a canopy over the Transit station platform	3	2.75	3	4	3	3	2.75	3	4
DS-1	Consider some containment system to protect transit passengers from Broward Blvd. traffic									
10	Provide an ADA ramp from the Transit platform to and from the Park & Ride level	3.25	2.5	3	3.5	2.75	3	2.75	3	4
11	~~No sidewalk on the South side, convey all pedestrians along the North sidewalk on Broward Blvd.~~	3.5	3	3	3	3	3	3	3	3.25
	Broward Boulevard Transit Station (Move Traffic)									
12	~~Build the Future 95 Express Noise Wall at River Gardens/Sweeting Estates~~									

TABLE 6.1 –2
Value Engineering Study Weighted Values

LOS	Capital Costs	Environ. Impacts	Stakeholder Acceptance	Construct-ability	Right of Way Impacts	Future Maintenance	Access Management	Pedestrian Friendliness
9	7	3	5	6	1	4	2	8

TABLE 6.1 –3
Value Engineering Study Evaluation Scores

Idea No.	Ideas	LOS	Capital Costs	Environ. Impacts	Stakeholder Acceptance	Construct-ability	Right of Way Impacts	Future Maintenance	Access Management	Pedestrian Friendliness	TOTAL	FHWA CATEGORIES				
	Original Concept											Safety	Construction	Operations	Environment	Other
	PD&E Alternative	27	21	9	15	18	3	12	6	24	**135**					
	I-95 Ramps/Operation (Move Traffic)															
5	95 to Express lanes and make the Broward Blvd. right turns to only go to the SB I-95 general use lanes. Segregate the triple lefts with one lane with delineators to go to a braided ramp 200 ft. south of Broward Blvd and the double lefts can only go to the general use lanes	36	19.25	9	17.5	15	3	10	6	24	**139.75**			X		
7	Utilize all existing Park' & Ride ramps via a new intersection on Broward Blvd. just south of NW 22nd Ave.; all general use lanes are either egress or ingress for I-95 general use lanes. City to vacate NW 22nd Ave.	36	35	9	12.5	28.5	1	16	5.5	28	**171.5**	X	X	X		
7A	If Idea No. 7 is accepted, join Sunrise Blvd.to SB I-95 and Broward Blvd. traffic into a C-D roadway to avoid weaving at I-95.	0	0	0	0	0	0	0	0	0	**0**	X		X		
	Broward Boulevard Transit Station (Move Traffic)															
8	Provide a canopy over the Transit station platform	27	19.25	9	20	18	3	11	6	32	**145.25**	X				
10	Provide an ADA ramp from the Transit platform to and from the Park & Ride level	29.3	17.5	9	17.5	16.5	3	11	6	32	**141.75**	X	X	X		

RECOMMENDATIONS 7

The results of this VE study are shown as individual recommendations developed for each area of the project. These recommendations include a comparison between the VE team's proposal and the designer's original concept. Each proposal consists of a summary of the original design, a description of the proposed change, and a descriptive evaluation of the advantages and disadvantages of the proposed recommendation. Sketches and calculations are shown, if appropriate. The estimated cost comparisons reflect unit prices and quantities on a comparative basis. Value improvement is the primary basis for comparison of competing ideas. To ensure that costs are comparable within the ideas proposed by the VE team, the FDOT Long Range Estimating System cost estimates were used as the pricing basis.

7.1 EVALUATION OF RECOMMENDATIONS

Some of the VE recommendations potential savings are interrelated, if one is accepted another one may or may not need to be added, or acceptance of one may mutually exclude another. The VE team identified potential savings as shown on **Table 1.4 – 1**, **Summary of Highest Rated Recommendations**. The write-ups for the individual developed ideas are included in this section and are shown in numerical order.

The FDOT and the design team should evaluate and determine whether to accept or not accept each recommendation. The recommendations that are accepted should be identified and listed for documentation purposes. For each idea that will not be accepted, the design team normally documents, in writing, the reason or reasons for the non-acceptance. The design suggestions are for consideration by FDOT and the designers. No specific action is normally required to accept or not accept the suggestions, though it is often helpful, for documentation purposes, to formally list those suggestions that will be incorporated by the designers.

7.2 CONSIDERATIONS AND ASSUMPTIONS

In the preparation of this report and the alternatives that follow, the VE study team made some assumptions with respect to conditions that may occur in the future. In addition, the VE study team reviewed the listed project documentation, relying solely upon the information provided by the designer and FDOT, and relying on that information as being true, complete and accurate. This value analysis and report are based on the following considerations, assumptions and conditions:

- The recommendations rendered herein are as of the date of this report. The VE study team or leaders assume no duty to monitor events after the date, or to advise or incorporate into any of the alternatives, any new, previously unknown technology.
- The VE study team or leaders assume that there are no material documents affecting the design or construction costs that the team has not seen. The existence of any such documents will necessarily alter the alternatives contained herein.

The study team or leaders do not warrant the feasibility of these recommendations or the advisability of their implementation. It is solely the responsibility of the designer in accordance with the owner, to explore the technical feasibility and make the determination for implementation.

RECOMMENDATION No. 5: Widen the EB Broward Boulevard to NB I-95 and diverge to a ramp SB I-95 to Express lanes and make the Broward Boulevard right turns to only go to the SB I-95 general use lanes. Segregate the triple lefts with one lane with delineators to go to a braided ramp 200 ft. south of Broward Boulevard and the double lefts can only go to the general use lanes

Proposed Concept:
The PD&E Documents show adding turn lanes at the ramp terminal locations and optimizing the intersection signal timings. Triple left-turn lanes for traffic traveling westbound are proposed for southbound ingress from Broward Boulevard to I-95. Triple right-turn lanes are also proposed for northbound I-95 to eastbound Broward Boulevard. The southbound exit ramp will have double right-turn lanes for westbound Broward Boulevard and triple left turns for eastbound traffic. There are no proposed improvements to the northbound ingress ramps from Broward Boulevard.

North and south of the interchange braided ramps are proposed for access to and from 95 Express with the exception of westbound Broward Boulevard to enter southbound 95 express. The next ingress point is north of Hollywood Boulevard, approximately 7.5 miles south of Broward Boulevard.

VE Alternative:
Widen eastbound Broward alongside the existing I-95 northbound entrance and build a bridge to tie-in to the Park & Ride SB I-95 Express entrance. Eastbound Broward Boulevard right turns only go to the southbound I-95 general use lanes. On westbound Broward Boulevard, segregate the left lane of the triple lefts with delineators to go to a braided ramp 200 ft. south of Broward Boulevard and the remaining double lefts can only go to the general use lanes

Advantages:

- Improved Level of Service by adding access to southbound I-95 Express from Broward Boulevard
- Express Lane Traffic isolated from general use.

Disadvantages:

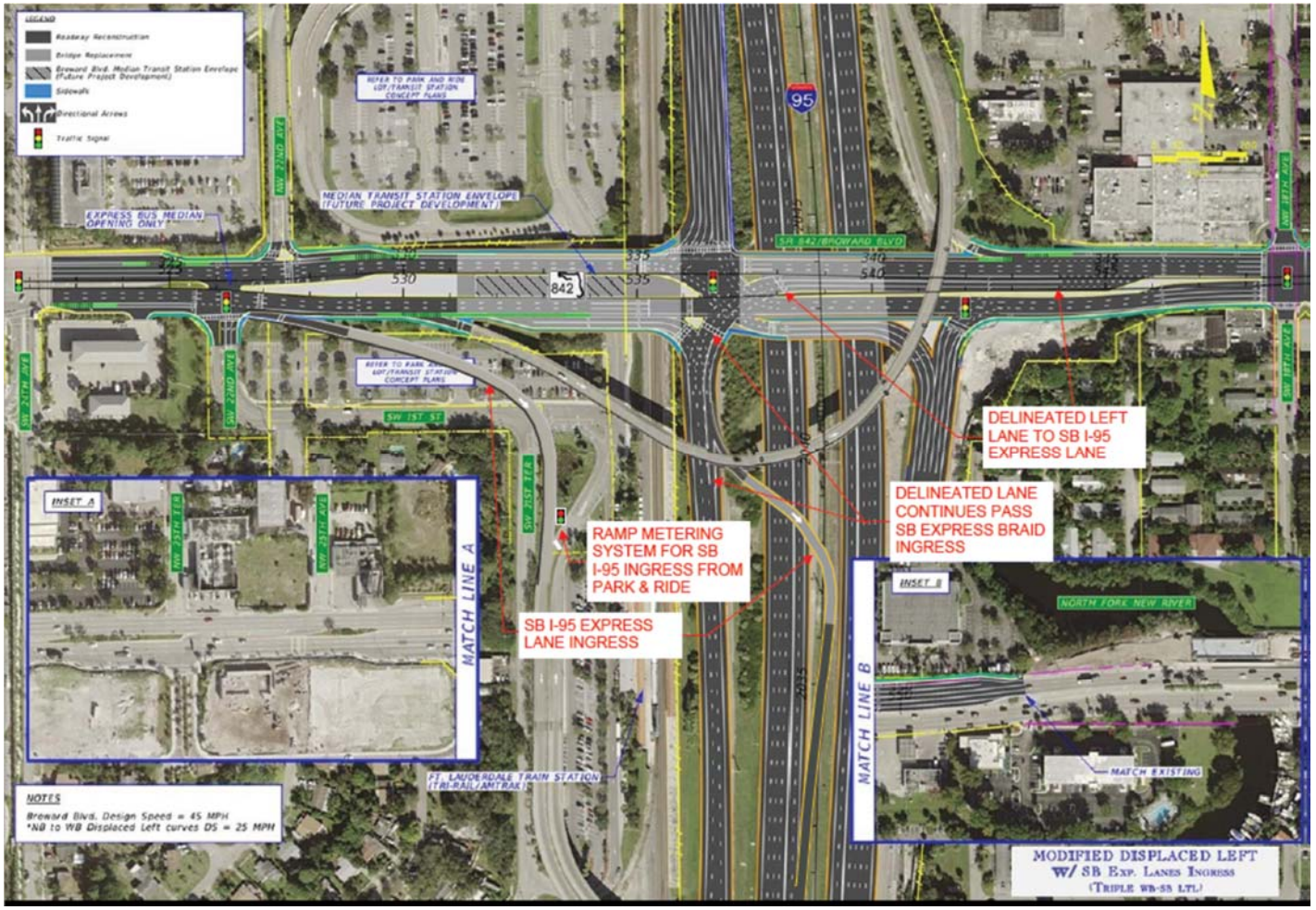
- Increased cost (two bridges to Express Lanes)
- Additional maintenance to new bridges.

Potential Value Added: ($7,738,000)

Calculations:

Description	Quantity	Unit	Unit Price	Extended Amount
Delineators	160	EA	$82.24	$13,158
Ramp Metering System	1	LS	$2,000.00	$2,000
Eastbound to Southbound Ingress	33,286	SF	$180.13	$5,995,791
Subtotal				$6,010,949
MOT (14%)				$841,533
Mobilization (10%)				$685,248
		CONSTRUCTION TOTAL		**$7,537,731**

RECOMMENDATION No. 5: Widen the EB Broward Boulevard to NB I-95 and diverge to a ramp SB I-95 to Express lanes and make the Broward Boulevard right turns to only go to the SB I-95 general use lanes. Segregate the triple lefts with one lane with delineators to go to a braided ramp 200 ft. south of Broward Boulevard and the double lefts can only go to the general use lanes



RECOMMENDATION No. 5A: Maintain the Broward Boulevard right turns to only go to the SB I-95 general use lanes. Segregate the triple lefts with one lane with delineators to go to a braided ramp 200 ft. south of Broward Boulevard and the double lefts can only go to the general use lanes

Proposed Concept:
The PD&E Documents show adding turn lanes at the ramp terminal locations and optimizing the intersection signal timings. Triple left-turn lanes for traffic traveling westbound are proposed for southbound ingress from Broward Boulevard to I-95. Triple right-turn lanes are also proposed for northbound I-95 to eastbound Broward Boulevard. The southbound exit ramp will have double right-turn lanes for westbound Broward Boulevard and triple left turns for eastbound traffic. There are no proposed improvements to the northbound ingress ramps from Broward Boulevard.

North and south of the interchange braided ramps are proposed for access to and from 95 Express with the exception of westbound Broward Boulevard to enter southbound 95 express. The next ingress point is north of Hollywood Boulevard, approximately 7.5 miles south of Broward Boulevard.

VE Alternative:
Maintain the eastbound Broward Boulevard right turns only go to the SB I-95 general use lanes. On westbound Broward Boulevard, segregate the left lane of the triple lefts with delineators to direct traffic to a braided ramp 200 ft. south of Broward Boulevard. The remaining double lefts can only go to the general use lanes.

Advantages:

- Westbound to southbound express lane traffic isolated from general use.

Disadvantages:

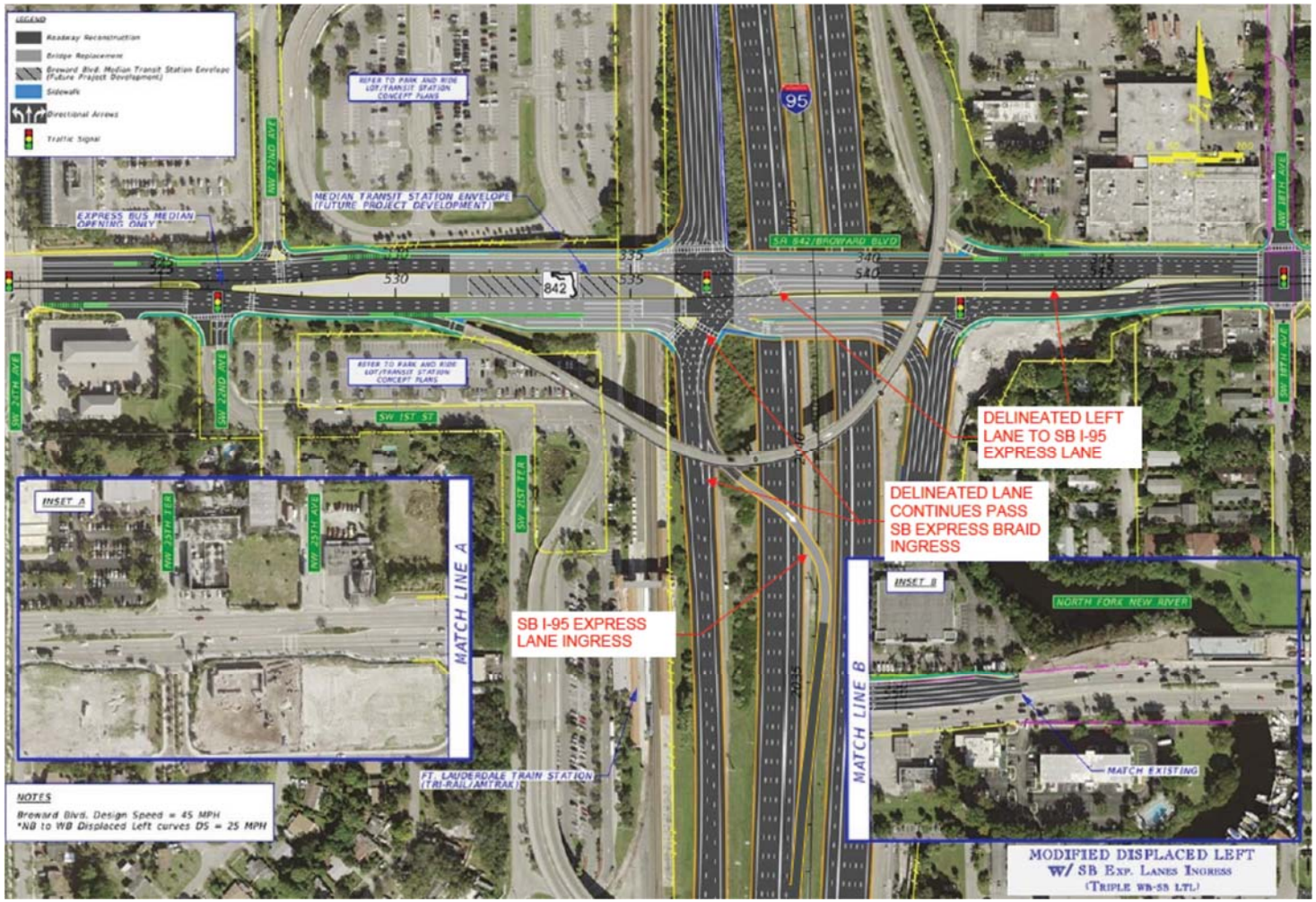
- Increased cost (braid to Express Lanes)
- Additional maintenance for new bridge

Potential Value Added: ($17,000)

Calculations:

Description	Quantity	Unit	Unit Price	Extended Amount
Delineators	160	EA	$82.24	$13,158
Subtotal				$13,158
MOT (14%)				$1,842
Mobilization (10%)				$1,500
		CONSTRUCTION TOTAL		**$16,501**

RECOMMENDATION No. 5A: Maintain the Broward Boulevard right turns to only go to the SB I-95 general use lanes. Segregate the triple lefts with one lane with delineators to go to a braided ramp 200 ft. south of Broward Boulevard and the double lefts can only go to the general use lanes



RECOMMENDATION No. 7: Utilize all existing Park' & Ride ramps via a new intersection on Broward Boulevard just south of NW 22nd Ave.; all general use lanes are either egress or ingress for I-95 general use lanes. City to vacate NW 22nd Ave.

Proposed Concept:
The PD&E Documents show adding turn lanes at the ramp terminal locations and optimizing the intersection signal timings. Triple left-turn lanes for traffic traveling westbound are proposed for southbound ingress from Broward Boulevard to I-95. Triple right-turn lanes are also proposed for northbound I-95 to eastbound Broward Boulevard. The southbound exit ramp will have double right-turn lanes for westbound Broward Boulevard and triple left turns for eastbound traffic. There are no proposed improvements to the northbound ingress ramps from Broward Boulevard.

North and south of the interchange braided ramps are proposed for access to and from 95 Express with the exception of westbound Broward Boulevard to enter southbound 95 express. The next ingress point is north of Hollywood Boulevard, approximately 7.5 miles south of Broward Boulevard.

VE Alternative:
Instead of new braided ramps use the existing express lane ramps for egress & ingress at Broward Boulevard. This can be accomplished by constructing a new full intersection at NW 22nd Avenue and Broward Boulevard and converting NW 22nd Avenue to a one-lane right turn only onto westbound Broward Boulevard and be adjacent with signalized northbound ingress and southbound egress ramps at the new intersection. Westbound Broward Boulevard traffic will also have a right turn lane added to provide access to the north Park & Ride lot. On the south side of the new intersection a new connection for SW 1st Street will be constructed and will take traffic to and from a roundabout that connects the Park & Ride lots and the ingress for southbound and egress for northbound 95 Express ramps. In the north Park & Ride lot the Bus entrance ramp to 95 Express northbound will be maintained to merge with the ramp from the new intersection.

Advantages:

- No need to build new Express Ramps on I-95
- Improve utilization of existing Park & Ride Ramps
- Separates neighborhood traffic from Park & Ride and express lane traffic
- Traffic Circle at corner of SW 1st St. at SW 21 Terr. will improve traffic flow.
- Traffic Circle provides opportunity for architectural enhancement and landscaping.
- Shorter construction timeline
- Impact to mainline traffic is greatly reduced.

Disadvantages:

- Increase in right of way cost at NW. 22nd Ave.
- Residential & public inconvenience during construction.
-

Potential Cost Savings: $41,722,000

RECOMMENDATION No. 7: Utilize all existing Park' & Ride ramps via a new intersection on Broward Boulevard just south of NW 22nd Ave.; all general use lanes are either egress or ingress for I-95 general use lanes. City to vacate NW 22nd Ave.

Calculations:

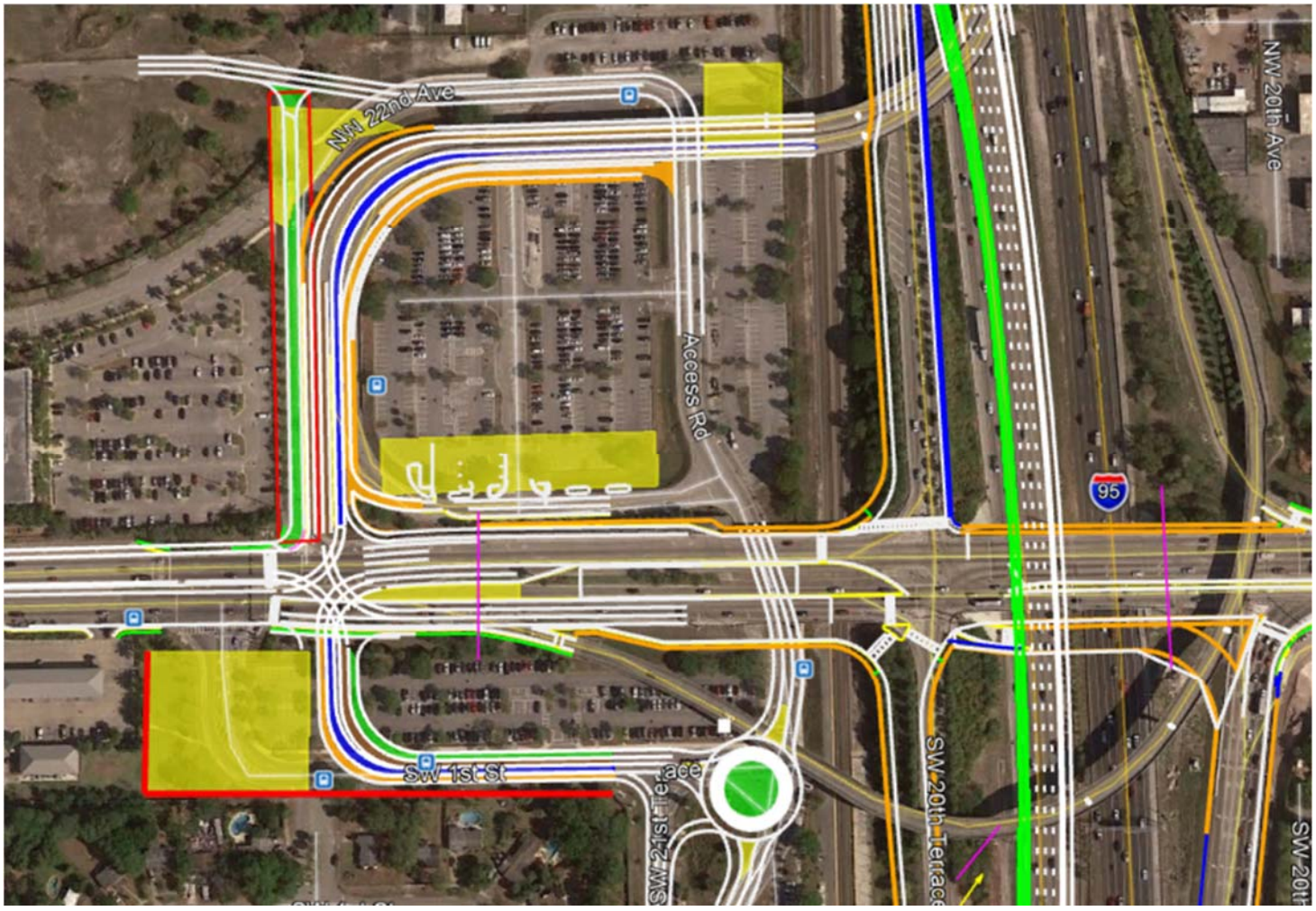
Description	Quantity	Unit	Unit Price	Extended Amount
NB General purpose to Broward	-1	LS	$2,423,618	($2,423,618)
SB General purpose to Broward	-1	LS	$9,322,514	($9,322,514)
SB express lane egress braid over I-95	-1	LS	$11,859,377	($11,859,377)
SB express lane ingress braid over I-95	-1	LS	$7,102,639	($7,102,639)
Express To/From North	-1	LS	$2,909,001	($2,909,001)
Express To/From South	-1	LS	$5,427,855	($5,427,855)
Subtotal				($39,045,004)
MOT (14%)				($5,466,301)
Mobilization (10%)				($4,451,131)
			CONSTRUCTION TOTAL	**($48,962,436)**

Potential Right of Way Cost =	$7,240,000
Potential Construction Savings =	$48,962,436
Total Potential Savings	$41,722,436

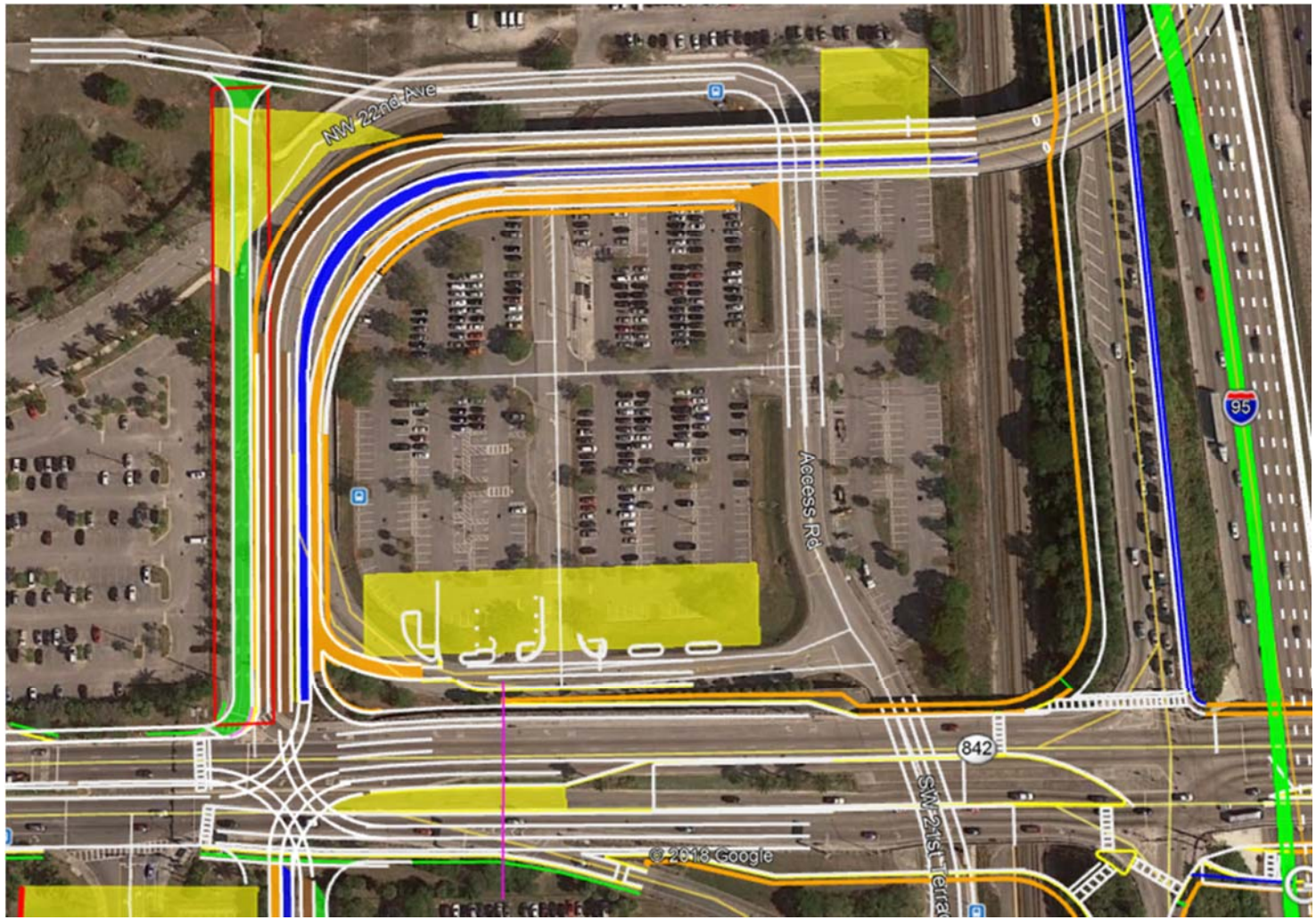
RECOMMENDATION No. 7: Utilize all existing Park' & Ride ramps via a new intersection on Broward Boulevard just south of NW 22nd Ave.; all general use lanes are either egress or ingress for I-95 general use lanes. City to vacate NW 22nd Ave.

	BASE				CONCEPT	CHANGE		
Sequence 1	$37,390,930	Broward Blvd			$ 37,390,930	SAME		
Sequence 2	$3,055,884	NB General purpose to Broward			$ -	USE EXISTING BRIDGE		
Sequence 3	$11,707,100	SB General purpose to Broward			$ -	USE EXISTING BRIDGE		
Sequence 4	$6,032,669	NB express lane egress braid over I-95			$ 2,341,678	TO/FROM NORTH		
Sequence 5	$8,509,177	NB express lane ingress braid over I-95			$ 1,667,158	TO/FROM SOUTH		
Sequence 6	$14,888,325	SB express lane egress braid over I-95			$ -	USE EXISTING BRIDGE		
Sequence 7	$8,923,376	SB express lane ingress braid over I-95			$ -	USE EXISTING BRIDGE		
Sequence 8	$11,583,861	Park and Ride			$ 11,583,861	SAME		
Sequence 9	$270,916	Contengency			$ 270,916	SAME		
	$102,362,239				$ 53,254,542	$ (49,107,697)	-48%	
EXPRESS TO/FROM NORTH	LENGH	WIDTH	HEIGHT	CONVERSTION				
EARTWORK	700	50	20	$0.04	$25,925.93	CY	10	$259,259
PAVEMEMENT AREA	700	84	1	$0.11	$6,533.33	SY		
STABILIZATION					$6,533.33	SY	5.3	$34,300
OBG 09					$6,533.33	SY	16.0	$104,533
ASPHALT			TON/SY	0.165	$1,078.00	TON	100.0	$107,800
FC			TON/SY	0.055	$59.29	TON	100.0	$5,929
PAINT				5%		LS		$12,628
SIGNING						LS	50,000.0	$50,000
SIGNAL	LENGH	NUMBER	HEIGHT	CONVERSTION		LS		$250,000
ITS NORTH		1				LS		$0
RETAINING WALL F SHAPE	700	2	1	1	$1,400.00	LF	200.0	$280,000
RETAING WALL SYSTEM	700	2	20	1	$28,000.00	SF	28.0	$784,000
SUBTOTAL								$1,888,450
TCP					$0.14			$264,383
MOB					$0.10			$188,845
								$2,341,678
EXPRESS TO/FROM SOUTH								
EARTWORK	1000	1	1	$0.04	$37.04	CY	10	$370
PAVEMEMENT AREA	1000	48	1	$0.11	$5,333.33	SY		
STABILIZATION					$5,333.33	SY	5.3	$28,000
OBG 09					$5,333.33	SY	16.0	$85,333
ASPHALT			TON/SY	0.165	$880.00	TON	100.0	$88,000
FC			TON/SY	0.055	$48.40	TON	100.0	$4,840
PAINT				5%		LS		$10,309
SIDEWALK	1300	6	2	$0.11	$1,733.33	SY	45.0	$78,000
SIGNING						LS		$1,000,000
SIGNAL	LENGH	NUMBER	HEIGHT	CONVERSTION		LS		$0
ITS NORTH		1				LS	50,000.0	$50,000
RETAINING WALL F SHAPE	0	0	0	0		LF	200.0	$0
RETAING WALL SYSTEM	0	0	0	0		SF	28.0	$0
SUBTOTAL								$1,344,482
							TOTAL	
TCP					14%			$188,227
MOB					10%			$134,448
								$1,667,158

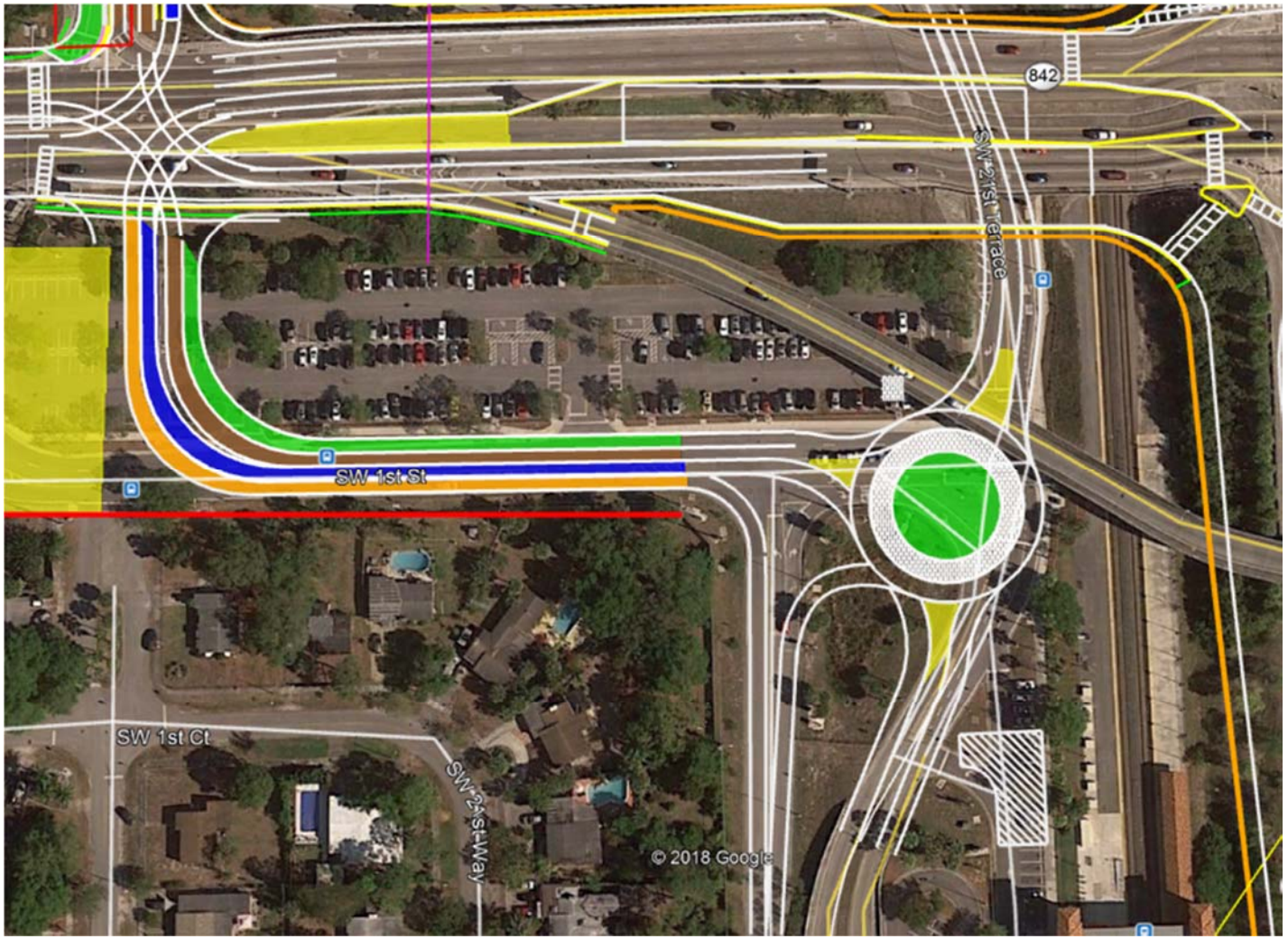
RECOMMENDATION No. 7: Utilize all existing Park' & Ride ramps via a new intersection on Broward Boulevard just south of NW 22nd Ave.; all general use lanes are either egress or ingress for I-95 general use lanes. City to vacate NW 22nd Ave.



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RECOMMENDATION No. 7: Utilize all existing Park' & Ride ramps via a new intersection on Broward Boulevard just south of NW 22nd Ave.; all general use lanes are either egress or ingress for I-95 general use lanes. City to vacate NW 22nd Ave.



RECOMMENDATION No. 7A: If Idea No. 7 is accepted, join Sunrise Boulevard to SB I-95 and Broward Boulevard traffic into a C-D roadway to avoid weaving at I-95

Proposed Concept:
The PD&E Documents show adding turn lanes at the ramp terminal locations and optimizing the intersection signal timings. Triple left-turn lanes for traffic traveling westbound are proposed for southbound ingress from Broward Boulevard to I-95. Triple right-turn lanes are also proposed for northbound I-95 to eastbound Broward Boulevard. The southbound exit ramp will have double right-turn lanes for westbound Broward Boulevard and triple left turns for eastbound traffic. There are no proposed improvements to the northbound ingress ramps from Broward Boulevard.

North and south of the interchange braided ramps are proposed for access to and from 95 Express with the exception of westbound Broward Boulevard to enter southbound 95 express. The next ingress point is north of Hollywood Boulevard, approximately 7.5 miles south of Broward Boulevard.

VE Alternative:
The VE Alternative recommends combining Sunrise Boulevard to SB I-95 ramp and the exit ramp to Broward Boulevard traffic into a C-D roadway to avoid the weaving on the I-95 mainline.

Advantages:

- Eliminates a weave

Disadvantages:

- Need to realign the Sunrise ramp
- Need to widen the bridge over NW 6th St.
- Adds cost

Potential Cost Savings: ($2,426,000)

Calculations:

Description	Quantity	Unit	Unit Price	Extended Amount
Earthwork	1	LS	$258,617.00	$258,617
Roadway	1	LS	$510,384.00	$510,384
Shoulder	1	LS	$263,869.00	$263,869
Bridge	5,000	SF	$180.30	$901,500
Subtotal				$1,934,370
MOT (14%)				$270,812
Mobilization (10%)				$220,518
		CONSTRUCTION TOTAL		**$2,425,700**

RECOMMENDATION No. 7A: If Idea No. 7 is accepted, join Sunrise Boulevard to SB I-95 and Broward Boulevard traffic into a C-D roadway to avoid weaving at I-95

North Half of a new C-D System



RECOMMENDATION No. 7A: If Idea No. 7 is accepted, join Sunrise Boulevard to SB I-95 and Broward Boulevard traffic into a C-D roadway to avoid weaving at I-95

South Half of a new C-D System



RECOMMENDATION No. 8: Provide a canopy over the Transit station platform

Proposed Concept:
The PD&E Documents show adding turn lanes at the ramp terminal locations and optimizing the intersection signal timings. Triple left-turn lanes for traffic traveling westbound are proposed for southbound ingress from Broward Boulevard to I-95. Triple right-turn lanes are also proposed for northbound I-95 to eastbound Broward Boulevard. The southbound exit ramp will have double right-turn lanes for westbound Broward Boulevard and triple left turns for eastbound traffic. There are no proposed improvements to the northbound ingress ramps from Broward Boulevard.

North and south of the interchange braided ramps are proposed for access to and from 95 Express with the exception of westbound Broward Boulevard to enter southbound 95 express. The next ingress point is north of Hollywood Boulevard, approximately 7.5 miles south of Broward Boulevard.

VE Alternative:
Construct a canopy for commuters boarding the bus and the WAVE, heading eastbound or westbound along Broward Boulevard. The canopy will provide shelter and lighting.

Advantages:

- Provides refuge from weather conditions
- Aesthetic feature
- Invites ridership
- Provides additional protection for elevator shaft

Disadvantages:

- Increased cost
- Additional maintenance

Potential Value Added: **($627,000)**

Calculations:

Description	Quantity	Unit	Unit Price	Extended Amount
Canopy with dynamic signage	1	LS	$500,000.00	$500,000
				$0
Subtotal				$500,000
MOT (14%)				$70,000
Mobilization (10%)				$57,000
		CONSTRUCTION TOTAL		**$627,000**

RECOMMENDATION No. 8: Provide a canopy over the Transit station platform



RECOMMENDATION No. 10: No sidewalk on the South side, convey all pedestrians along the North sidewalk on Broward Boulevard Adding an accessible ramp along the side of Broward. Widening the existing bike lanes along the south side of Broward

Proposed Concept:
The PD&E Documents show adding turn lanes at the ramp terminal locations and optimizing the intersection signal timings. Triple left-turn lanes for traffic traveling westbound are proposed for southbound ingress from Broward Boulevard to I-95. Triple right-turn lanes are also proposed for northbound I-95 to eastbound Broward Boulevard. The southbound exit ramp will have double right-turn lanes for westbound Broward Boulevard and triple left turns for eastbound traffic. There are no proposed improvements to the northbound ingress ramps from Broward Boulevard.

North and south of the interchange braided ramps are proposed for access to and from 95 Express with the exception of westbound Broward Boulevard to enter southbound 95 express. The next ingress point is north of Hollywood Boulevard, approximately 7.5 miles south of Broward Boulevard.

VE Alternative:
1.1 Construct an accessible ramp along the north side of Broward Boulevard. Beginning from the ground level next to the park n ride lot, riding up along the MSE wall at a 1:10 slope. Leading up to an opening to give access to Broward Boulevard
1.2 Construct an ADA spiral ramp from the access road under Broward Boulevard up to the top level of Broward Boulevard

Advantages:
- Better access (ADA)
- Increase inter-modal connection
- Improve safety

Disadvantages:
- Could possibly limit widening in the future for the bridge.
- Increases Cost
- Increases Maintenance

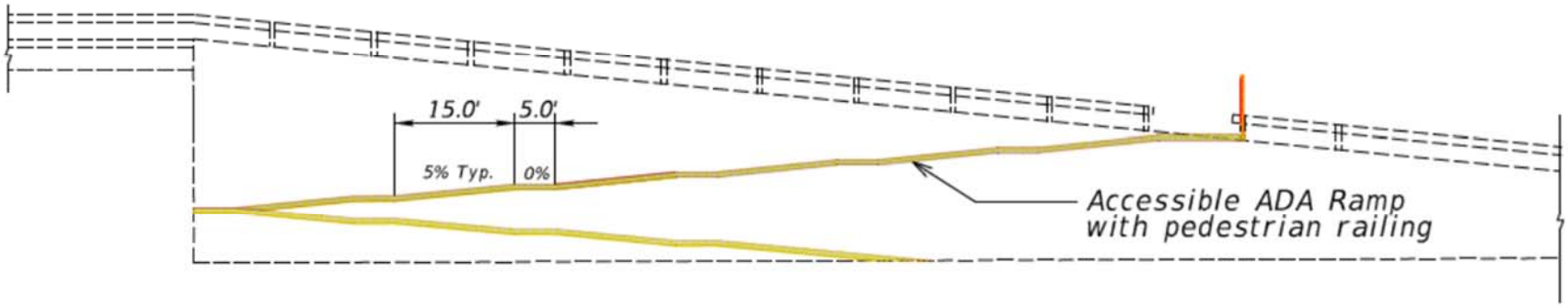
Potential Value Added: ($740,000)

Calculations:

Description	Quantity	Unit	Unit Price	Extended Amount
Accessible Ramp 515-2-213	1	LF	$60.50	$61
Detecable Warning Sign 527-2	2	SF	$26.98	$54
Reinforce Cement Concrete Pavement	1	SY	$74.45	$74
Deck Concrete	737	CY	$700.00	$515,900
Steel Piling-18" Pipe Pile	825	LF	$90.00	$74,250
Subtotal				$590,339
MOT (14%)				$82,647
Mobilization (10%)				$67,299
		CONSTRUCTION TOTAL		**$740,285**

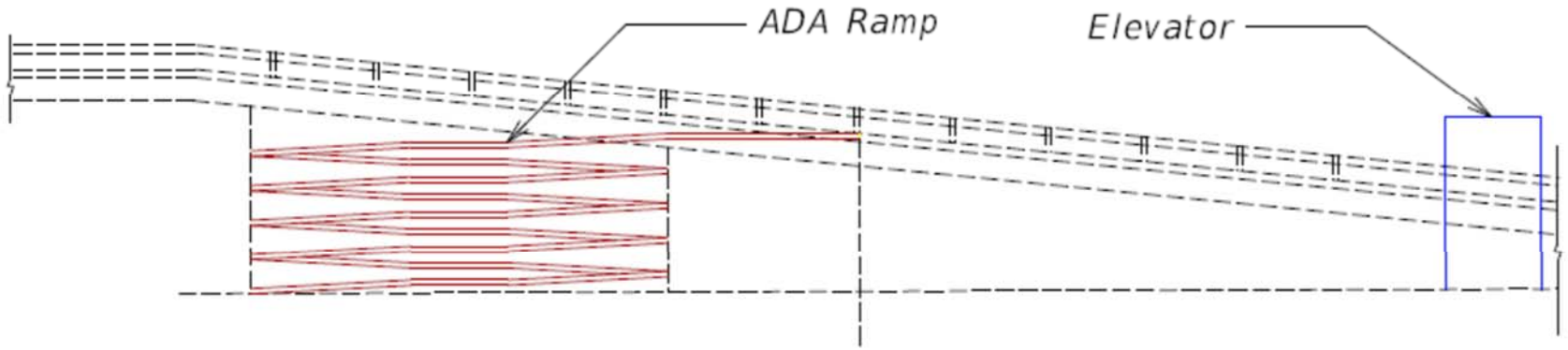
RECOMMENDATION No. 10: No sidewalk on the South side, convey all pedestrians along the North sidewalk on Broward Boulevard Adding an accessible ramp along the side of Broward. Widening the existing bike lanes along the south side of Broward

ADA Ramp on the north side of Broward Boulevard



RECOMMENDATION No. 10: No sidewalk on the South side, convey all pedestrians along the North sidewalk on Broward Boulevard Adding an accessible ramp along the side of Broward. Widening the existing bike lanes along the south side of Broward

ADA Ramp under the Transit Platform on Broward Boulevard



APPENDICES

Agenda
Sign In Sheets
Resolution Memorandum
Slide Presentation

Agenda

Broward Boulevard and I-95 Ultimate Interchange
January 22 – 26, 2018

Day One (D4 Auditorium)	Kickoff Intro by VE Team Leader	8:30 am – 8:45 am
	Designer Orientation	8:45 am – 9:45 am
	Questions for Designers	9:45 am – 11:00 am
	Travel to Site	11:00 am – 12:00 pm
	Lunch	12:00 pm – 1:00 pm
	Site Review	1:00 pm – 2:45pm
	Return to FTL	2:45 pm – 3:15 pm
	Summarize Site Review & Constraints	3:15 pm – 5:00 pm
Day Two (Comfort Inn)	Cost Model & Function Analysis	8:00 am –9:00 am
	FAST Diagram	9:00 am – 9:30 am
	Intro to Creative Thinking	10:00 am – 10:15 am
	Creative Idea Listing/Function	10:15 am – 12:00 pm
	Lunch	12:00 pm – 1:00 pm
	Creative/Evaluation/Function	1:00 pm – 5:00 pm
Day Three (Comfort Inn)	Evaluation Phase	8:00 am – 12:00 pm
	Lunch	12:00 pm – 1:00 pm
	Begin Development Phase	1:00 pm – 2:00 pm
	Mid-point review and determine economic factors	2:00 pm – 3:00 pm
	Continue Development Phase	3:00 pm – 5:00 pm
Day Four (Comfort Inn)	Continue Development	8:00 am – 5:00 pm
Day Five (D4 Auditorium)	Finish Development/Prepare Oral Presentation	8:00 am – 10:00 pm
	Oral Presentation to FDOT/others	10:00 am – 12:00 pm
	Begin Draft Value Engineering Report	1:00 pm – 5:00 pm

FLORIDA DEPARTMENT OF TRANSPORTATION

VALUE ENGINEERING KICKOFF

I-95 at Broward Boulevard

January 22, 2018

SIGN IN SHEET

Name	Representing	Phone Number	Email Address	User ID
Claudia Calvo	FDOT Drainage	(954)777-4476	claudia.calvo@dot.state.fl.us	Rd 453cc
BRIANI BOSKET	FDOT CONTRACTS	954 934-4082	BRIANI.BOSKET@dot.State.fl.us	MT491BB
Yenny O. Soca	FDOT Roadway	954-777-4193	Yenny.soca@dot.state.fl.us	Rd 452 Y.S
Ray Abreu	FDOT	954-777-4253	Raynier.Abreu@dot...	RW455ra
Will Isidort	FDOT	954 777 4844	will.isidort@dot.state.Fl.us	ST458WI
Garrett O'Brady	FDOT Roadway	954-777-4590	garrett.Obrady@dot.state.FL.us	RD452go
Eugene Khashper	Utilities	954-777-4128	eugene.khashper@dot.state.fl.us	rd446ek
Lynn Kelley	FDOT PLEMO	x4354	Lynn Kelley....	PL430
ALBERTO SORDINAS	FDOT SM	x 4175	ALBERTO.SORD...	
William Grey	FDOT BOP Const.	x7511	william.grey@dot.state.fl.us	CM412WG
Khalilah French	FDOT OMO	(981)677 7898		
Scott Thurman	FDOT PM	954 777 4135	Scott.Thurman@DOT.STATE.FL.US.	RD452ST
Francisco Cruz	PMA VE Team	813-408-4030	FCRUZ@pmaconsultants.com	
Rick Johnson	"	321-217-5182	rjohnson@pmaconsultants.com	

FLORIDA DEPARTMENT OF TRANSPORTATION

VALUE ENGINEERING MID-POINT REVIEW

I-95 at Broward Boulevard

January 24, 2018

SIGN IN SHEET

Name	Representing	Phone Number	Email Address	User ID
Claudia Calvo	Drainage	(954) 777-4476	claudia.calvo@dot.state.fl.us	Rd453Cc
Raynier Abreu	R/W	* 4253	Raynier.Abreu@dot...	RW455RA
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Garrett O'Brady	Roadway Design	954-777-4390	garrett.obrady@dot.state.fl.us	Rd452go
Will Isidort	FDOT-Structures	954-777-4448	will.isidort@dot.state.FL.us	ST458Wi
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Will Suero	HDR	954-668-5223	W.11.Suero@HDRINC.com	
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ALAN MRVICA	FDOT TRAFF	954-777-4317	ALAN.MRVICA@DOT.STATE.FL.US	RWMRAMA

FLORIDA DEPARTMENT OF TRANSPORTATION

VALUE ENGINEERING STUDY PRESENTATION

I-95 at Broward Boulevard

January 26, 2018

SIGN IN SHEET

Name	Representing	Phone Number	Email Address	User ID
Alberto Sardinas	FDOT	x 4175	ALBERTO.SARDINAS@...	
Claudia Calvo	FDOT	x 4476	claudia.calvo@dot.state.fl.us	Rd453
Raynier Abreu	FDOT	x 4253	Raynier.Abreu@dot...	RW455RA
Yenny O. Soca	FDOT	x 4193	Yenny.Soca@dot.state.fl.us	
Garrett O'Brady	FDOT	x 4397	garrett.Obrady@dot.state.fl.us	GD452cc
BRIAN BOSKET	FDOT	954 934-4082	Brian.Basket@dot.state.fl.US	MT491BB
William Grey	FDOT	x7511	William.Grey@dot.state.fl.us	CM12wg
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Will Suero	HDR	954-668-5223	will.suero2HDRINC.com	
William Leidy	HDR	954-233-4941	william.leidy@hdrinc.com	
Steve Fisher	FDOT	954-777-4246	stephen.fisher@dot.state.fl.us	RW455sf
JOHN DANIELSEN	HDR	9542709765	JOHN.DANIELSEN@HDRINC.com	
Emilie Corrales	HDR	954-258-4945	ecorrale@hdrinc.com	

FLORIDA DEPARTMENT OF TRANSPORTATION

VALUE ENGINEERING STUDY PRESENTATION

I-95 at Broward Boulevard

January 26, 2018

SIGN IN SHEET

Name	Representing	Phone Number	Email Address	User ID
Tim Brock	FDOT	954-777-4185	Tim.Brock@dot.state.fl.us	
Jeff Robbert	FDOT	954-777-4698	Jeffrey.Robbert@dot.state.fl.us	
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Andy Amoedo	ROW FDOT		Andy.Amoedo@dot.state.fl.us	
Cristian Jensen	R/W FDOT	4231	Cristian.Jensen@dot.state.fl.us	
James Poole	FDOT	4704	jamespoole@dot...	
James Hughes	FDOT	x4419	james.hughes@dot. ...	
Michael Kim	FDOT	x#9010	Michael.Kim@dot.state.fl.us	
Newton Wilson	FDOT	x4411		
Howard Webb	"	4436		
Paul Lampkin	Const.	4384		
John Olson	FDOT Design	4452	John.Olson@DOT...	
Colleen	FDOT			
Josh Miller	R/W	4237	Josh.Miller	
Lynda Codd	In House	4206		

FLORIDA DEPARTMENT OF TRANSPORTATION

VALUE ENGINEERING STUDY PRESENTATION

I-95 at Broward Boulevard

January 26, 2018

SIGN IN SHEET

Name	Representing	Phone Number	Email Address	User ID
JULIA JIMENEZ	FDOT	x 4415	JULIA.JIMENEZ@dot.state.fl.us	rd452jr
DONNOIE WEBSTER	FDOT ROW	4238	donald.webster@dot...	
CHRISTOPHER CHANEL	FDOT MAINT	7539		
MATT CASSONDI	FDOT	x 7038	matthew.cassondi@dot.state.fl.us	MCT415
Robert Lopez	FDOT	4425	Robert.Lopez@Dot.State.FL.US	RD452R
Binod Basnet	FDOT	4146	binod.basnet@dot.state.fl.us	
Alia Chanel	FDOT	4472	alia.chanel@dot.state.fl.us	
SHANDRA DAVIS	FDOT	7896	shandra.davis@dot.state.fl.us	PL430SD
Hui Shi	FDOT	x 4457		
Wilard Metellus	FDOT	4467		
STEVE BRAUN	FDOT	4445		
Ann Rueschhoff	FDOT	4325		
Bodler Barthelemy	FDOT	4169	bodler.barthelemy@dot.state.fl.us	
Henry Oaikhena	FDOT	x 4445		

FLORIDA DEPARTMENT OF TRANSPORTATION

VALUE ENGINEERING STUDY PRESENTATION

I-95 at Broward Boulevard

January 26, 2018

SIGN IN SHEET

Name	Representing	Phone Number	Email Address	User ID
Marwood, Dan	R/W	4238	Dan. Marwood @ ...	
VanitaSaini	FDOT-Design	4468	Vanita.Saini@dot...	
MARK PLASU	Development	4399	Mark. Plavo ...	TO46ZMP
WILLIAM NASS	Structures	4643	WILLIAM.NASS@	ST458WN
ROBERTO BETANCOURT	DRAINAGE	4453	ROBERTO.BETANCOURT@ ...	
Kevin Lopez	FDOT	4457	Kevin A. Lopez @ ...	
ANA TORRES	R/W	4255		
FRANCIS LEWIS	FDOT-BOPS	7663	Francis.Lewis@dot.state.fl.us	EN412EL
Tony Conde	FDOT-R/W		Tony.Conde@dot.state.fl.us	
Cesar Martinez	FDOT-PLEMO	7653	cesar.martinez //	
VICTOR RAMOS	FDOT R/W	4257	VICTOR.RAMOS@DOT.STATE.FL.US	RWA55
MartezzAlan	DRMO	4445		MTAHOMA
Juliet Ashbourne	UTILITY	4126	Juliet.ashbourne@dot.state.fl.us	RD446JA
John Rademeyer	R/W			
ISTVAN VIRAG	FDOT	4369	ISTVAN.VIRAG@DOT.STATE.FL.US	

FDOT

Florida Department of Transportation

RICK SCOTT
GOVERNOR

3400 West Commercial Boulevard
Fort Lauderdale, FL 33309

MIKE DEW
SECRETARY

Date: November 20, 2017

To: Steven C. Braun, P.E. District Design Engineer

From: Stacy L. Miller, P.E. Director of Transportation Development

Copies: John Olson, P.E., James Hughes, P.E., Anson Sonnett, P.E., VE Team Members

Subject: **Value Engineering Study Responses**

SLIDE PRESENTATION

Appendix E

Transit Maps

For more details on our fares please visit our web site at broward.org/bct or call customer service: 954.357.8400.

Reading A Timetable - It's Easy

1. The map shows the exact bus route.
2. Major route intersections are called time points. Time points are shown with the symbol ☐.
3. The timetable lists major time points for bus route. Listed under time points are scheduled departure times.
4. Reading from left to right, indicates the time for each bus trip.
5. The bus picks up and drops off riders at all BCT bus stop signs along the route where there is a Broward County bus stop sign.
6. Arrive at the bus stop five minutes early. Buses operate as close to published timetables as traffic conditions allow.

Not paying your fare is a crime per Florida Statute 812.015. Violation constitutes a misdemeanor, punishable by jail time and/or a fine.

Information: 954.357.8400

Hearing-speech impaired/TTY: 954.357.8302

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This symbol is used on bus stop signs to indicate accessible bus stops.

BROWARD COUNTY FLORIDA
BROWARD COUNTY
BOARD OF COUNTY COMMISSIONERS
An equal opportunity employer and provider of services.

13,000 copies of this public document were promulgated at a gross cost of $572.00, or $.044 per copy to inform the public about the Transit Division's schedule and route information. Reprinted 5/18

ROUTE 9

All Week

Schedule

Effective 1/18/15



Young Circle to Broward Central Terminal

MyRide BROWARD.org

Real Time Bus Information
MyRide.Broward.org

BROWARD COUNTY Transit

954-357-8400
Broward.org/BCT

There are additional bus stops in between those listed.

MONDAY-FRIDAY

SOUTHBOUND

To Young Circle

BRIOWARD CENTRAL TERMINAL	BROWARD BLVD & 31 AVE	RIVERLAND RD & US 441	BCC CENTRAL CAMPUS	JOHNSON ST & US 441	YOUNG CIRCLE
6	**5**	**4**	**3**	**2**	**1**
	5:25a	5:41a	5:50a	6:14a	6:33a
6:00a	6:09a	6:25a	6:34a	7:02a	7:21a
6:55a	7:05a	7:22a	7:32a	8:00a	8:19a
7:40a	7:52a	8:08a	8:19a	8:47a	9:06a
8:30a	8:42a	8:58a	9:07a	9:31a	9:49a
9:15a	9:27a	9:41a	9:50a	10:14a	10:32a
10:00a	10:12a	10:26a	10:35a	10:59a	11:17a
10:50a	11:02a	11:16a	11:27a	11:49a	12:07p
11:35a	11:47a	12:01p	12:12p	12:34p	12:52p
12:20p	12:32p	12:46p	12:57p	1:19p	1:38p
1:05p	1:17p	1:31p	1:42p	2:08p	2:28p
1:55p	2:07p	2:21p	2:31p	2:53p	3:12p
2:40p	2:52p	3:06p	3:16p	3:38p	3:58p
3:30p	3:42p	3:56p	4:08p	4:34p	4:54p
4:20p	4:34p	4:48p	5:00p	5:25p	5:43p
5:10p	5:24p	5:38p	5:50p	6:14p	6:32p
6:00p	6:14p	6:28p	6:40p	7:04p	7:22p
6:50p	7:04p	7:18p	7:30p	7:53p	8:10p
7:30p	7:41p	7:55p	8:06p	8:27p	8:43p
8:15p	8:25p	8:38p	8:49p	9:07p	9:23p G
9:00p	9:10p	9:24p	9:35p	9:51p	10:07p G

NORTHBOUND

To Broward Central Terminal

YOUNG CIRCLE	JOHNSON ST & US 441	BCC CENTRAL CAMPUS	RIVERLAND RD & US 441	BROWARD BLVD & 31 AVE	BRIOWARD CENTRAL TERMINAL
1	**2**	**3**	**4**	**5**	**6**
			5:25a	5:40a	5:53a
			6:15a	6:30a	6:43a
6:00a	6:21a	6:44a	6:54a	7:09a	7:22a
6:50a	7:11a	7:34a	7:44a	7:59a	8:16a
7:40a	8:03a	8:27a	8:37a	8:52a	9:06a
8:30a	8:53a	9:15a	9:24a	9:38a	9:50a
9:20a	9:41a	10:02a	10:11a	10:25a	10:37a
10:00a	10:21a	10:43a	10:53a	11:07a	11:19a
10:45a	11:07a	11:29a	11:39a	11:53a	12:05p
11:30a	11:52a	12:14p	12:24p	12:38p	12:50p
12:20p	12:42p	1:04p	1:14p	1:28p	1:40p
1:05p	1:27p	1:49p	1:59p	2:13p	2:25p
1:50p	2:12p	2:34p	2:44p	2:58p	3:12p
2:40p	3:02p	3:26p	3:39p	3:55p	4:09p
3:30p	3:54p	4:18p	4:31p	4:44p	4:56p
4:15p	4:40p	5:05p	5:19p	5:32p	5:44p
5:05p	5:32p	5:57p	6:11p	6:24p	6:36p
5:55p	6:22p	6:47p	6:56p	7:09p	7:19p
6:45p	7:05p	7:26p	7:35p	7:48p	7:58p
7:35p	7:55p	8:16p	8:25p	8:38p	8:48p
8:25p	8:45p	9:06p	9:15p	9:28p	9:38pG
9:00p	9:20p	9:41p	9:50p	10:03p	10:13pG

NUMBERS IN BOXES REFER TO TIME POINTS ON MAP

Times with the letter "G" after them indicate bus returns to garage.

SATURDAY

SOUTHBOUND

To Young Circle

BROWARD CENTRAL TERMINAL	BROWARD BLVD & 31 AVE	RIVERLAND RD & US 441	BCC CENTRAL CAMPUS	JOHNSON ST & US 441	YOUNG CIRCLE
6	5	4	3	2	1
			5:50a	6:12a	6:28a
6:05a	6:14a	6:28a	6:36a	6:58a	7:14a
7:05a	7:14a	7:28a	7:36a	7:58a	8:14a
8:05a	8:14a	8:28a	8:36a	8:58a	9:15a
9:05a	9:16a	9:31a	9:39a	10:01a	10:18a
10:05a	10:16a	10:31a	10:39a	11:03a	11:23a
11:05a	11:16a	11:31a	11:39a	12:03p	12:23p
12:05p	12:16p	12:31p	12:39p	1:03p	1:23p
1:05p	1:16p	1:31p	1:39p	2:03p	2:23p
2:05p	2:16p	2:31p	2:39p	3:03p	3:23p
3:05p	3:16p	3:31p	3:39p	4:03p	4:23p
4:05p	4:15p	4:30p	4:37p	5:02p	5:22p
5:05p	5:15p	5:30p	5:37p	6:02p	6:19p
6:05p	6:15p	6:30p	6:37p	7:00p	7:17p
7:05p	7:15p	7:30p	7:37p	8:00p	8:17p
8:05p	8:15p	8:30p	8:37p	9:00p	9:17pG
9:05p	9:15p	9:30p	9:37p	10:00p	10:17pG

NORTHBOUND

To Broward Central Terminal

YOUNG CIRCLE	JOHNSON ST & US 441	BCC CENTRAL CAMPUS	RIVERLAND RD & US 441	BROWARD BLVD & 31 AVE	BROWARD CENTRAL TERMINAL
1	2	3	4	5	6
			6:35a	6:48a	7:00a
6:35a	6:54a	7:16a	7:24a	7:38a	7:50a
7:35a	7:54a	8:18a	8:25a	8:39a	8:51a
8:35a	8:54a	9:17a	9:24a	9:39a	9:51a
9:35a	9:55a	10:18a	10:25a	10:39a	10:51a
10:35a	10:55a	11:18a	11:26a	11:40a	11:52a
11:35a	11:55a	12:19p	12:26p	12:39p	12:53p
12:35p	12:54p	1:18p	1:25p	1:39p	1:52p
1:35p	1:55p	2:20p	2:26p	2:40p	2:53p
2:35p	2:55p	3:20p	3:26p	3:40p	3:52p
3:35p	3:55p	4:18p	4:25p	4:36p	4:47p
4:35p	4:55p	5:18p	5:25p	5:38p	5:50p
5:35p	5:55p	6:18p	6:25p	6:38p	6:50p
6:35p	6:55p	7:18p	7:25p	7:38p	7:50p
7:35p	7:55p	8:18p	8:24p	8:38p	8:48p
8:35p	8:55p	9:19p	9:25p	9:39p	9:49pG

SUNDAY

SOUTHBOUND

To Young Circle

6	5	4	3	2	1
9:00a	9:10a	9:24a	9:32a	9:53a	10:08a
10:00a	10:09a	10:25a	10:34a	10:55a	11:10a
11:00a	11:09a	11:25a	11:34a	11:55a	12:10p
12:00p	12:09p	12:25p	12:34p	12:55p	1:13p
1:00p	1:11p	1:25p	1:34p	1:54p	2:11p
2:00p	2:10p	2:24p	2:34p	2:54p	3:09p
3:00p	3:10p	3:24p	3:34p	3:54p	4:09p
4:00p	4:10p	4:24p	4:34p	4:54p	5:08p
5:00p	5:09p	5:23p	5:33p	5:54p	6:08p
6:00p	6:09p	6:23p	6:33p	6:54p	7:09pG
7:00p	7:10p	7:25p	7:35p	7:55p	8:10pG

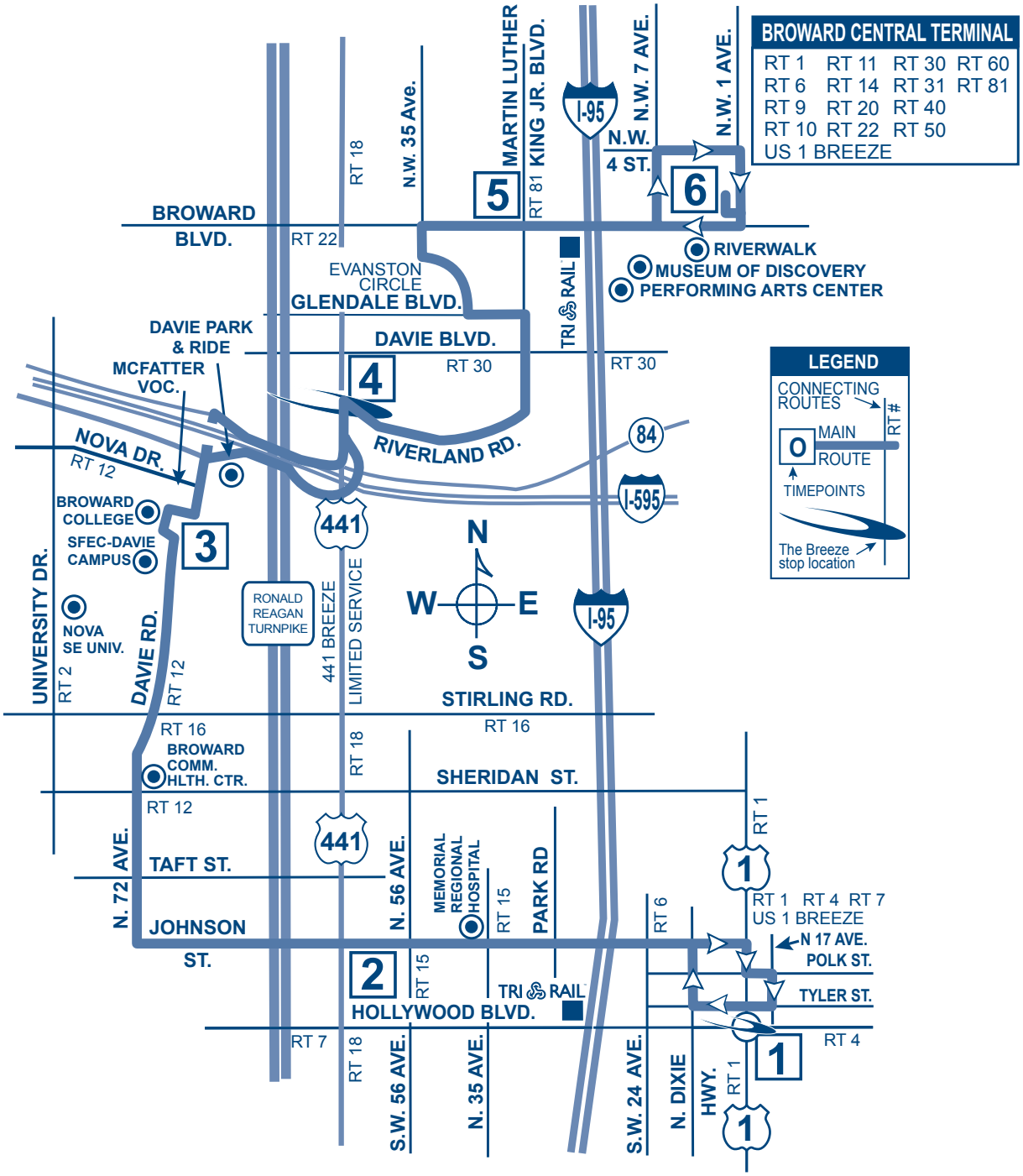
NORTHBOUND

To Broward Central Terminal

1	2	3	4	5	6
8:30a	8:49a	9:11a	9:18a	9:31a	9:40a
9:30a	9:49a	10:09a	10:16a	10:28a	10:37a
10:30a	10:49a	11:11a	11:18a	11:29a	11:38a
11:30a	11:49a	12:11p	12:18p	12:29p	12:38p
12:30p	12:49p	1:11p	1:18p	1:29p	1:38p
1:30p	1:49p	2:11p	2:18p	2:29p	2:38p
2:30p	2:49p	3:11p	3:18p	3:29p	3:37p
3:30p	3:50p	4:12p	4:18p	4:29p	4:37p
4:30p	4:50p	5:12p	5:19p	5:30p	5:38p
5:30p	5:50p	6:12p	6:19p	6:30p	6:38p
6:30p	6:50p	7:12p	7:19p	7:30p	7:38pG

ROUTE 9

Young Circle to Broward Central Terminal



POINTS OF INTEREST

- Broward Community Health Center-South
- Memorial Regional Hospital
- Broward College
- McFatter Vocational
- Davie Park & Ride
- Nova Southeastern University
- South Florida Education Center
- Broward Center for the Performing Arts
- Museum of Discovery and Science
- Riverwalk Historical District

Customer Service

Monday - Friday.....7 am - 7:45 pm
Saturday, Sunday and Holidays.....8:30 am - 4:45 pm

Transit Operations Agents help with:

- Trip planning
- Routes, times and transfer information
- Identifying Bus Pass sales locations
- Special event information

Lost and Found: 954-357-8400, Monday, Tuesday, Thursday and Friday, 9:00 am - 4:00 pm

Holiday Bus Service

Sunday bus service is provided on the following observed holidays:

New Year's Day	Labor Day	Memorial Day
Independence Day	Thanksgiving Day	Christmas Day

Fares

Exact fare, dollar bill or coins required. Operators do not carry change.

Fares are: Regular, Premium Express, Senior/Youth/Disabled/Medicare.* Children (under 40 inches ride FREE)

Fare Deals

All Day Bus Pass offers unlimited rides on all routes. On sale aboard all BCT buses.

NOTE: Other cost saving passes cannot be purchased on BCT buses, but are available at the Central Bus Terminal and at authorized distributors.

10 Ride Pass: 10 Rides any time, any day. Expires after the tenth ride is taken.

7 Day Pass: Unlimited rides for seven consecutive days. Starts on the first day card is used. Expires after the seventh day.

31 Day Adult Pass: Unlimited rides for 31 consecutive days. Starts on the first day card is used.

31 Day Reduced Pass: Youth*, Seniors*, Disabled*, Medicare*, College Student*. Unlimited rides for 31 consecutive days. Starts on the first day card is used.

****Premium Express 10 Ride Pass:** 10 rides any time, any day. Expires after tenth ride is taken.

****Premium Express 31 Day Pass:** Unlimited rides for 31 consecutive days. Starts on the first day card is used.

Bus Passes are not redeemable, refundable or transferrable. Damaged cards are invalid. Lost, stolen or damaged cards will not be replaced.

*NOTICE: Proof of age is required for Youth fare (18 years or younger) and for Senior fare (65 years or older). For College Student Bus Pass, a college photo ID card is required. For Disabled and Medicare fare, proof of disability (Medicare card) and photo I.D. is required. Eligible Senior fare patrons are encouraged to acquire their BCT Reduced Fare Photo ID cards.

** Premium Bus Pass can be purchased online at Broward.org/BCT and at select Broward County library locations.

PROTECTIONS OF TITLE VI OF THE CIVIL RIGHTS ACT OF 1964 AS AMENDED

Any person(s) or group(s) who believes that they have been subjected to discrimination because of race, color, or national origin, under any transit program or activity provided by Broward County Transit (BCT), may call 954-357-8481 to file a Title VI discrimination complaint or write to Broward County Transit Division, Compliance Manager, 1 N. University Drive, Suite 3100A, Plantation, FL 33324.

TRANSIT WATCH

**WHEN IT COMES TO OUR SAFETY,
WE CAN ALWAYS USE AN EXTRA PAIR OF EYES AND EARS.
BE ALERT.
CALL 954-357-LOOK (5665). TELL US.**

TRANSFER POLICY - EFFECTIVE 7/10/11

TRANSFERS BETWEEN REGULAR BCT BUS SERVICE AND BCT EXPRESS BUS SERVICE

Passengers using any BCT bus pass and transferring from a regular BCT route, to an Express bus route, must pay a $1.00 upgrade fee. Passengers with a Premium bus pass do not have to pay the $1.00 upgrade fee.

Passengers paying with cash, on a regular BCT bus route, will not be able to transfer to an Express bus route without paying the full premium fare when boarding the Express bus.

Passengers using an All-Day bus pass will be required to pay the $1.00 upgrade fee when boarding Express buses.

PREMIUM BUS PASS CUSTOMERS

The BCT 31-Day Premium Bus Pass is acceptable on all BCT regular bus routes.

TRANSFERS FROM BCT TO OTHER SOUTH FLORIDA TRANSIT SYSTEMS

When boarding a BCT bus, passenger pays the appropriate BCT fare and may request a transfer from the bus operator if transferring to Miami-Dade Transit (MDT), Palm Tran or Tri-Rail.

TRANSFERS TO BCT FROM OTHER SOUTH FLORIDA TRANSIT SYSTEMS

When transferring from MDT, Palm Tran and Tri-Rail to BCT regular fixed-route bus service, passenger pays $.50 with a transfer issued by MDT or Palm Tran and proof of fare payment such as Easy Card and receipt issued by Tri-Rail. Tri-Rail passengers boarding BCT at any locations other than at a Tri-Rail station will be required to pay the full fare.

TRANSFERS BETWEEN OTHER SOUTH FLORIDA TRANSIT SYSTEMS AND PREMIUM EXPRESS BUS SERVICE

Transfers to MDT or Tri-Rail from Premium Express Service, a transfer is issued and passenger must pay appropriate MDT or Tri-Rail fare.

Transfer from MDT or Tri-Rail to Premium Express Service, a $.50 transfer fee is required with the appropriate transfer from MDT or Tri-Rail.

The Premium Express Service does not connect with Palm Tran.

The Easy Card issued by MDT and Tri-Rail is not accepted as payment on any BCT bus.

For more details on our fares please visit our web site at Broward.org/BCT or call customer service: 954.357.8400.

Reading A Timetable - It's Easy

1. The map shows the exact bus route.
2. Major route intersections are called time points. Time points are shown with the symbol ☐.
3. The timetable lists major time points for bus route. Listed under time points are scheduled departure times.
4. Reading from left to right, indicates the time for each bus trip.
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6. Arrive at the bus stop five minutes early. Buses operate as close to published timetables as traffic conditions allow.

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BROWARD COUNTY FLORIDA

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ROUTE 22

Weekday Schedule

Effective 10/9/16



Sawgrass Mills Mall (Green Toad Entrance) to Broward Central Terminal
via Broward Boulevard

MyRide BROWARD.org
Real Time Bus Information
MyRide.Broward.org

BROWARD COUNTY Transit

You Tube
954-357-8400
Broward.org/BCT

MONDAY - FRIDAY

There are additional bus stops in between those listed.

EASTBOUND

To Broward Central Terminal

SAWGRASS MILLS MALL	BROWARD BLVD & FLAMINGO RD	WEST REGIONAL TERMINAL	WESTFIELD MALL	BROWARD BLVD & US 441	FT. LAUDERDALE TRI-RAIL STATION	BROWARD CENTRAL TERMINAL
1	2	3	4	5	6	7
		5:00a		5:15a	5:25a	5:35a
		5:30a		5:45a	5:55a	6:05a
5:35a	5:47a	6:00a		6:15a	6:25a	6:35a
		6:15a		6:30a	6:40a	6:50a
6:05a	6:17a	6:30a		6:45a	6:55a	7:07a
		6:45a		7:00a	7:11a	7:25a
6:30a	6:42a	6:55a	7:02a	7:16a	7:27a	7:41a
		7:10a	7:17a	7:31a	7:42a	7:56a
7:00a	7:13a	7:25a	7:32a	7:46a	7:57a	8:11a
		7:40a	7:47a	8:01a	8:12a	8:26a
7:30a	7:43a	7:55a	8:02a	8:16a	8:27a	8:41a
		8:10a	8:17a	8:31a	8:42a	8:56a
8:00a	8:13a	8:25a	8:32a	8:46a	8:57a	9:10a
		8:40a	8:47a	9:01a	9:11a	9:24a
8:30a	8:43a	8:55a	9:02a	9:15a	9:25a	9:38a
		9:10a	9:17a	9:30a	9:40a	9:53a
9:00a	9:12a	9:25a	9:32a	9:45a	9:55a	10:08a
		9:40a	9:47a	10:00a	10:10a	10:23a
9:30a	9:42a	9:55a	10:02a	10:15a	10:25a	10:38a
		10:10a	10:17a	10:30a	10:40a	10:53a
10:00a	10:12a	10:25a	10:32a	10:45a	10:55a	11:08a
		10:40a	10:47a	11:00a	11:10a	11:23a
10:30a	10:42a	10:55a	11:02a	11:15a	11:25a	11:38a
		11:10a	11:17a	11:30a	11:40a	11:53a
11:00a	11:12a	11:25a	11:32a	11:45a	11:55a	12:08p
		11:40a	11:47a	12:00p	12:10p	12:23p
11:30a	11:42a	11:55a	12:02p	12:15p	12:25p	12:38p
		12:10p	12:17p	12:30p	12:40p	12:53p
12:00p	12:12p	12:25p	12:32p	12:45p	12:55p	1:08p
		12:40p	12:47p	1:00p	1:10p	1:23p
12:30p	12:42p	12:55p	1:02p	1:15p	1:25p	1:38p
		1:10p	1:17p	1:30p	1:40p	1:53p
1:00p	1:12p	1:25p	1:32p	1:45p	1:55p	2:08p
		1:40p	1:47p	2:00p	2:10p	2:23p
1:30p	1:42p	1:55p	2:02p	2:15p	2:25p	2:38p
		2:10p	2:17p	2:30p	2:40p	2:53p
2:00p	2:12p	2:25p	2:32p	2:45p	2:55p	3:08p
		2:40p	2:47p	3:00p	3:10p	3:23p
2:30p	2:42p	2:55p	3:02p	3:15p	3:25p	3:38p
		3:10p	3:17p	3:30p	3:40p	3:53p
3:00p	3:12p	3:25p	3:32p	3:45p	3:55p	4:09p
		3:40p	3:47p	4:00p	4:11p	4:25p
3:30p	3:42p	3:55p	4:02p	4:16p	4:27p	4:41p
		4:10p	4:17p	4:31p	4:42p	4:56p

WESTBOUND

To Sawgrass Mills Mall

BROWARD CENTRAL TERMINAL	FT. LAUDERDALE TRI-RAIL STATION	BROWARD BLVD & US 441	WESTFIELD MALL	WEST REGIONAL TERMINAL	BROWARD BLVD & FLAMINGO RD	SAWGRASS MILLS MALL
7	6	5	4	3	2	1
5:20a	5:30a	5:40a		5:55a	6:04a	6:15a
5:35a	5:45a	5:55a		6:10a		
5:50a	6:00a	6:10a		6:25a	6:34a	6:45a
6:05a	6:15a	6:25a		6:40a		
6:20a	6:30a	6:40a		6:55a	7:04a	7:15a
6:35a	6:48a	6:59a	7:13a	7:20a	7:29a	7:40a
6:50a	7:03a	7:14a	7:28a	7:35a		
7:05a	7:18a	7:29a	7:43a	7:50a	7:59a	8:10a
7:20a	7:33a	7:44a	7:58a	8:05a		
7:35a	7:48a	7:59a	8:13a	8:20a	8:29a	8:40a
7:50a	8:03a	8:14a	8:28a	8:35a		
8:05a	8:18a	8:29a	8:43a	8:50a	8:59a	9:10a
8:20a	8:33a	8:44a	8:58a	9:05a		
8:35a	8:48a	8:59a	9:13a	9:20a	9:29a	9:40a
8:50a	9:03a	9:14a	9:28a	9:35a		
9:05a	9:18a	9:29a	9:43a	9:50a	9:59a	10:10a
9:20a	9:33a	9:44a	9:58a	10:05a		
9:35a	9:48a	9:59a	10:13a	10:20a	10:29a	10:40a
9:50a	10:03a	10:14a	10:28a	10:35a		
10:05a	10:18a	10:29a	10:43a	10:50a	10:59a	11:10a
10:20a	10:33a	10:44a	10:58a	11:05a		
10:35a	10:48a	10:59a	11:13a	11:20a	11:29a	11:40a
10:50a	11:03a	11:14a	11:28a	11:35a		
11:05a	11:18a	11:29a	11:43a	11:50a	11:59a	12:10p
11:20a	11:33a	11:44a	11:58a	12:05p		
11:35a	11:48a	11:59a	12:13p	12:20p	12:29p	12:40p
11:50a	12:03p	12:14p	12:28p	12:35p		
12:05p	12:18p	12:29p	12:43p	12:50p	12:59p	1:10p
12:20p	12:33p	12:44p	12:58p	1:05p		
12:35p	12:48p	12:59p	1:13p	1:20p	1:29p	1:40p
12:50p	1:03p	1:14p	1:28p	1:35p		
1:05p	1:18p	1:29p	1:43p	1:50p	1:59p	2:10p
1:20p	1:33p	1:44p	1:58p	2:05p		
1:35p	1:48p	1:59p	2:13p	2:20p	2:29p	2:40p
1:50p	2:03p	2:14p	2:28p	2:35p		
2:05p	2:18p	2:29p	2:43p	2:50p	2:59p	3:10p
2:20p	2:33p	2:44p	2:58p	3:05p		
2:35p	2:48p	2:59p	3:13p	3:20p	3:29p	3:40p
2:50p	3:03p	3:14p	3:28p	3:35p		
3:05p	3:18p	3:29p	3:43p	3:50p	3:59p	4:10p
3:20p	3:33p	3:44p	3:58p	4:05p		
3:35p	3:48p	3:59p	4:13p	4:21p	4:31p	4:42p
3:50p	4:03p	4:15p	4:30p	4:37p		
4:05p	4:19p	4:31p	4:46p	4:53p	5:03p	5:14p

NUMBERS IN BOXES REFER TO TIME POINTS ON MAP

Times with the letter "G" before them indicate bus returns to garage. To ensure reliable and safe connections for our customers, all trips with the "W" note will NOT depart terminal until directed by either the terminal supervisor or radio.

Times continue on next page

MONDAY - FRIDAY

There are additional bus stops in between those listed.

EASTBOUND

To Broward Central Terminal

SAWGRASS MILLS MALL	BROWARD BLVD & FLAMINGO RD	WEST REGIONAL TERMINAL	WESTFIELD MALL	BROWARD BLVD & US 441	FT. LAUDERDALE TRI-RAIL STATION	BROWARD CENTRAL TERMINAL
1	**2**	**3**	**4**	**5**	**6**	**7**
4:00p	4:13p	4:25p	4:32p	4:46p	4:57p	5:11p
		4:40p	4:47p	5:01p	5:12p	5:26p
4:30p	4:43p	4:55p	5:02p	5:16p	5:27p	5:41p
		5:10p	5:17p	5:31p	5:42p	5:56p
5:00p	5:13p	5:25p	5:32p	5:46p	5:57p	6:10p
		5:40p	5:47p	6:01p	6:11p	6:24p
5:30p	5:43p	5:55p	6:02p	6:15p	6:25p	6:38p
		6:10p	6:17p	6:30p	6:40p	6:55p G
6:00p	6:12p	6:25p	6:32p	6:45p	6:55p	7:08p
		6:40p	6:47p	7:00p	7:10p	7:25p G
6:30p	6:42p	6:55p	7:02p	7:15p	7:25p	7:38p
7:00p	7:12p	7:25p	7:32p	7:45p	7:55p	8:06p
7:40p	7:52p	8:05p	8:12p	8:25p	8:35p	8:45p
8:20p	8:32p	8:45p	8:52p	9:05p	9:15p	9:25p
9:00p	9:12p	9:25p	9:32p	9:45p	9:55p	10:05p
9:40p	9:52p	10:05p	10:12p	10:25p	10:35p	10:45p
10:20p	10:32p	10:45p		11:00p		11:15p G
11:00p	11:12p	11:25p		11:40p		11:55p G

WESTBOUND

To Sawgrass Mills Mall

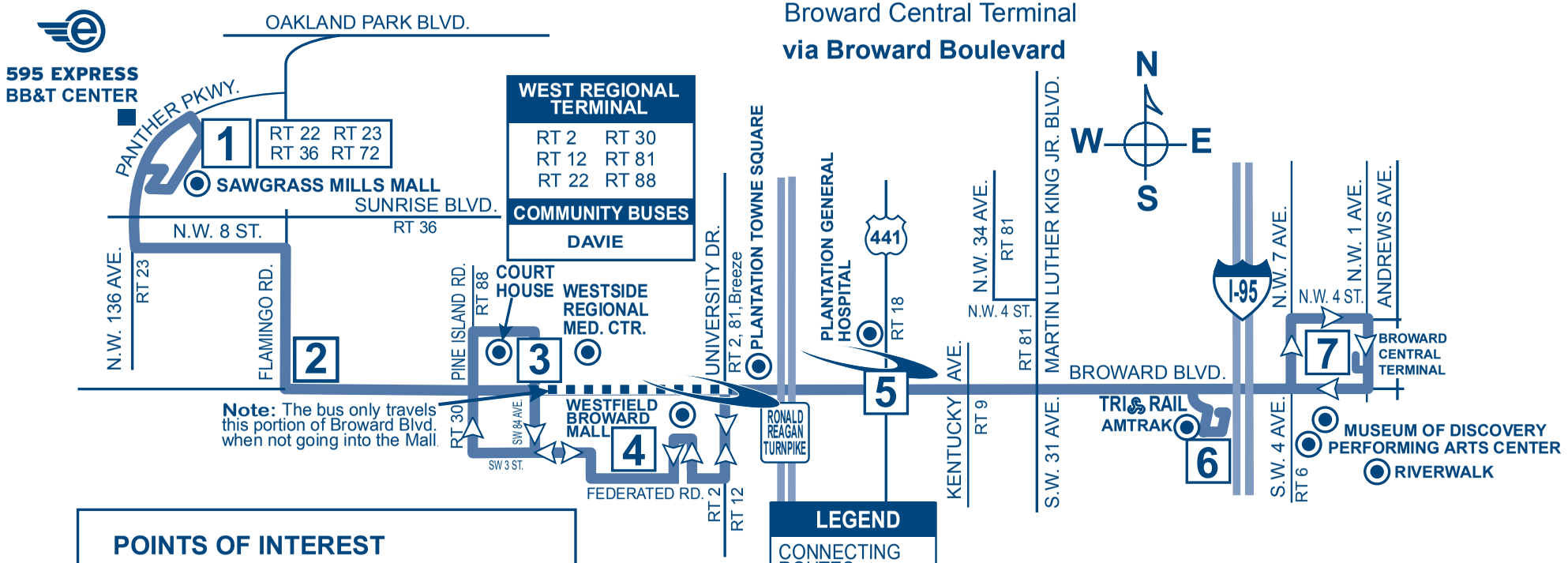
BROWARD CENTRAL TERMINAL	FT. LAUDERDALE TRI-RAIL STATION	BROWARD BLVD & US 441	WESTFIELD MALL	WEST REGIONAL TERMINAL	BROWARD BLVD & FLAMINGO RD	SAWGRASS MILLS MALL
7	**6**	**5**	**4**	**3**	**2**	**1**
4:20p	4:34p	4:46p	5:01p	5:08p		
4:35p	4:49p	5:01p	5:16p	5:23p	5:33p	5:44p
4:50p	5:04p	5:16p	5:31p	5:38p		
5:05p	5:19p	5:31p	5:46p	5:53p	6:03p	6:14p
5:20p	5:34p	5:46p	6:01p	6:08p		
5:35p	5:49p	6:01p	6:16p	6:25p	6:34p	6:45p
5:50p	6:04p	6:15p	6:29p	6:36p		
6:05p	6:18p	6:29p	6:43p	6:50p	6:59p	7:10p G
6:20p	6:33p	6:44p	6:58p	7:05p G		
6:35p	6:48p	6:59p	7:13p	7:20p	7:29p	7:40p
6:55p	7:08p	7:19p	7:33p	7:40p G		
7:15p	7:28p	7:39p	7:53p	8:00p	8:09p	8:20p
7:45p	7:58p	8:09p	8:23p	8:30p	8:39p	8:50p
8:20p	8:30p	8:40p	8:53p	9:00p	9:09p	9:20p
9:00p	9:10p	9:20p	9:33p	9:40p	9:49p	10:00p
9:40p	9:50p	10:00p	10:13p	10:20p	10:29p	10:40p
10:20p	10:30p	10:40p		10:55p G		
11:05p W		11:20p		11:35p G		

NUMBERS IN BOXES REFER TO TIME POINTS ON MAP

Times with the letter “G” before them indicate bus returns to garage. To ensure reliable and safe connections for our customers, all trips with the “W” note will NOT depart terminal until directed by either the terminal supervisor or radio.

ROUTE 22

Sawgrass Mills Mall (Green Toad Entrance) to
Broward Central Terminal
via Broward Boulevard



POINTS OF INTEREST

- Westfield Broward Mall
- Plantation Towne Square
- Sawgrass Mills Mall
- Plantation General Hospital
- Westside Regional Medical Center
- Broward Center for the Performing Arts
- Museum of Discovery & Science
- Riverwalk Historical District
- AMTRAK / Tri-Rail
- West Regional Courthouse

LEGEND

CONNECTING ROUTES → RT #

0 MAIN ROUTE

TIMEPOINTS

The Breeze stop location

95 Express

COMMUNITY BUSES AT THE TERMINAL

City of Fort Lauderdale
Northwest Circulator
Downtown Commuter
Park & Ride
Las Olas Beaches

BROWARD CENTRAL TERMINAL

RT 1	RT 11	RT 30	RT 60
RT 6	RT 14	RT 31	RT 81
RT 9	RT 20	RT 40	
RT 10	RT 22	RT 50	
US 1 BREEZE			

For more details on our fares please visit our web site at broward.org/bct or call customer service: 954.357.8400.

Reading A Timetable - It's Easy

1. The map shows the exact bus route.
2. Major route intersections are called time points. Time points are shown with the symbol ☐.
3. The timetable lists major time points for bus route. Listed under time points are scheduled departure times.
4. Reading from left to right, indicates the time for each bus trip.
5. The bus picks up and drops off riders at all BCT bus stop signs along the route where there is a Broward County bus stop sign.
6. Arrive at the bus stop five minutes early. Buses operate as close to published timetables as traffic conditions allow.

Not paying your fare is a crime per Florida Statute 812.015. Violation constitutes a misdemeanor, punishable by jail time and/or a fine.

Information: 954.357.8400

Hearing-speech impaired/TTY: 954.357.8302

This publication can be made available in alternative formats upon request by contacting 954-357-8400 or TTY 954-357-8302.

This symbol is used on bus stop signs to indicate accessible bus stops.

BROWARD COUNTY FLORIDA

BROWARD COUNTY
BOARD OF COUNTY COMMISSIONERS
An equal opportunity employer and provider of services.

10,000 copies of this public document were promulgated at a gross cost of $460.00, or $.046 per copy to inform the public about the Transit Division's schedule and route information. Reprinted 1/18

ROUTE 22

Weekend Schedule

Effective 1/19/14



Sawgrass Mills Mall (Green Toad Entrance) to Broward Central Terminal
via Broward Boulevard

MyRide BROWARD.org

Real Time Bus Information
MyRide.Broward.org

BROWARD COUNTY Transit

954-357-8400
Broward.org/BCT

SATURDAY

There are additional bus stops in between those listed.

EASTBOUND

To Broward Central Terminal

SAWGRASS MILLS MALL	BROWARD BLVD & FLAMINGO RD	WEST REGIONAL TERMINAL	WESTFIELD MALL	BROWARD BLVD & US 441	FT. LAUDERDALE TRI-RAIL STATION	BROWARD CENTRAL TERMINAL
1	**2**	**3**	**4**	**5**	**6**	**7**
		5:25a		5:40a		5:55a
		5:55a		6:10a		6:25a
		6:20a		6:35a	6:45a	6:55a
		6:45a		7:00a	7:10a	7:20a
6:50a	7:02a	7:15a	7:22a	7:35a	7:45a	7:55a
7:20a	7:32a	7:45a	7:52a	8:05a	8:15a	8:25a
7:50a	8:02a	8:15a	8:22a	8:35a	8:45a	8:55a
8:20a	8:32a	8:45a	8:52a	9:05a	9:15a	9:25a
8:50a	9:02a	9:15a	9:22a	9:35a	9:45a	9:55a
9:20a	9:32a	9:45a	9:52a	10:05a	10:15a	10:25a
9:50a	10:02a	10:15a	10:22a	10:35a	10:45a	10:55a
10:20a	10:32a	10:45a	10:52a	11:05a	11:15a	11:25a
10:50a	11:02a	11:15a	11:22a	11:35a	11:45a	11:55a
11:20a	11:32a	11:45a	11:52a	12:05p	12:15p	12:25p
11:50a	12:02p	12:15p	12:22p	12:35p	12:45p	12:55p
12:20p	12:32p	12:45p	12:52p	1:05p	1:15p	1:25p
12:50p	1:02p	1:15p	1:22p	1:35p	1:45p	1:55p
1:20p	1:32p	1:45p	1:52p	2:05p	2:15p	2:25p
1:50p	2:02p	2:15p	2:22p	2:35p	2:45p	2:55p
2:20p	2:32p	2:45p	2:52p	3:05p	3:15p	3:25p
2:50p	3:02p	3:15p	3:22p	3:35p	3:45p	3:55p
3:20p	3:32p	3:45p	3:52p	4:05p	4:15p	4:25p
3:50p	4:02p	4:15p	4:22p	4:35p	4:45p	4:55p
4:20p	4:32p	4:45p	4:52p	5:05p	5:15p	5:25p
4:50p	5:02p	5:15p	5:22p	5:35p	5:45p	5:55p
5:20p	5:32p	5:45p	5:52p	6:05p	6:15p	6:25p
5:50p	6:02p	6:15p	6:22p	6:35p	6:45p	6:55p
6:20p	6:32p	6:45p	6:52p	7:05p	7:15p	7:25p
6:50p	7:02p	7:15p	7:22p	7:35p	7:45p	7:55p
7:20p	7:32p	7:45p	7:52p	8:05p	8:15p	8:25p G
7:50p	8:02p	8:15p	8:22p	8:35p	8:45p	8:55p
8:20p	8:32p	8:45p	8:52p	9:05p	9:15p	9:25p
9:10p	9:22p	9:35p	9:42p	9:55p	10:05p	10:15p
10:00p	10:12p	10:25p	10:32p	10:45p		11:00p G
10:40p	10:52p	11:05p		11:20p		11:35p G

WESTBOUND

To Sawgrass Mills Mall

BROWARD CENTRAL TERMINAL	FT. LAUDERDALE TRI-RAIL STATION	BROWARD BLVD & US 441	WESTFIELD MALL	WEST REGIONAL TERMINAL	BROWARD BLVD & FLAMINGO RD	SAWGRASS MILLS MALL
7	**6**	**5**	**4**	**3**	**2**	**1**
5:45a		6:00a		6:15a	6:24a	6:35a
6:10a	6:20a	6:30a		6:45a	6:54a	7:05a
6:35a	6:45a	6:55a	7:08a	7:15a	7:24a	7:35a
7:05a	7:15a	7:25a	7:38a	7:45a	7:54a	8:05a
7:35a	7:45a	7:55a	8:08a	8:15a	8:24a	8:35a
8:05a	8:15a	8:25a	8:38a	8:45a	8:54a	9:05a
8:35a	8:45a	8:55a	9:08a	9:15a	9:24a	9:35a
9:05a	9:15a	9:25a	9:38a	9:45a	9:54a	10:05a
9:35a	9:45a	9:55a	10:08a	10:15a	10:24a	10:35a
10:05a	10:15a	10:25a	10:38a	10:45a	10:54a	11:05a
10:35a	10:45a	10:55a	11:08a	11:15a	11:24a	11:35a
11:05a	11:15a	11:25a	11:38a	11:45a	11:54a	12:05p
11:35a	11:45a	11:55a	12:08p	12:15p	12:24p	12:35p
12:05p	12:15p	12:25p	12:38p	12:45p	12:54p	1:05p
12:35p	12:45p	12:55p	1:08p	1:15p	1:24p	1:35p
1:05p	1:15p	1:25p	1:38p	1:45p	1:54p	2:05p
1:35p	1:45p	1:55p	2:08p	2:15p	2:24p	2:35p
2:05p	2:15p	2:25p	2:38p	2:45p	2:54p	3:05p
2:35p	2:45p	2:55p	3:08p	3:15p	3:24p	3:35p
3:05p	3:15p	3:25p	3:38p	3:45p	3:54p	4:05p
3:35p	3:45p	3:55p	4:08p	4:15p	4:24p	4:35p
4:05p	4:15p	4:25p	4:38p	4:45p	4:54p	5:05p
4:35p	4:45p	4:55p	5:08p	5:15p	5:24p	5:35p
5:05p	5:15p	5:25p	5:38p	5:45p	5:54p	6:05p
5:35p	5:45p	5:55p	6:08p	6:15p	6:24p	6:35p
6:05p	6:15p	6:25p	6:38p	6:45p	6:54p	7:05p
6:35p	6:45p	6:55p	7:08p	7:15p	7:24p	7:35p
7:05p	7:15p	7:25p	7:38p	7:45p	7:54p	8:05p
7:35p	7:45p	7:55p	8:08p	8:15p	8:24p	8:35p G
8:05p	8:15p	8:25p	8:38p	8:45p	8:54p	9:05p
8:55p	9:05p	9:15p	9:28p	9:35p	9:44p	9:55p
9:35p	9:45p	9:55p	10:08p	10:15p	10:24p	10:35p
10:15p		10:30p		10:45p	10:54p	11:05p G

NUMBERS IN BOXES REFER TO TIME POINTS ON MAP

Times with the letter "G" after them indicate bus returns to garage.

SUNDAY

EASTBOUND

To Broward Central Terminal

SAWGRASS MILLS MALL	BROWARD BLVD & FLAMINGO RD	WEST REGIONAL TERMINAL	WESTFIELD MALL	BROWARD BLVD & US 441	FT. LAUDERDALE TRI-RAIL STATION	BROWARD CENTRAL TERMINAL
1	**2**	**3**	**4**	**5**	**6**	**7**
		8:15a		8:30a	8:40a	8:50a
		8:45a		9:00a	9:10a	9:20a
8:50a	9:02a	9:15a	9:22a	9:35a	9:45a	9:55a
9:20a	9:32a	9:45a	9:52a	10:05a	10:15a	10:25a
9:50a	10:02a	10:15a	10:22a	10:35a	10:45a	10:55a
10:20a	10:32a	10:45a	10:52a	11:05a	11:15a	11:25a
10:50a	11:02a	11:15a	11:22a	11:35a	11:45a	11:55a
11:20a	11:32a	11:45a	11:52a	12:05p	12:15p	12:25p
11:50a	12:02p	12:15p	12:22p	12:35p	12:45p	12:55p
12:20p	12:32p	12:45p	12:52p	1:05p	1:15p	1:25p
12:50p	1:02p	1:15p	1:22p	1:35p	1:45p	1:55p
1:20p	1:32p	1:45p	1:52p	2:05p	2:15p	2:25p
1:50p	2:02p	2:15p	2:22p	2:35p	2:45p	2:55p
2:20p	2:32p	2:45p	2:52p	3:05p	3:15p	3:25p
2:50p	3:02p	3:15p	3:22p	3:35p	3:45p	3:55p
3:20p	3:32p	3:45p	3:52p	4:05p	4:15p	4:25p
3:50p	4:02p	4:15p	4:22p	4:35p	4:45p	4:55p
4:20p	4:32p	4:45p	4:52p	5:05p	5:15p	5:25p
4:50p	5:02p	5:15p	5:22p	5:35p	5:45p	5:55p
5:20p	5:32p	5:45p	5:52p	6:05p	6:15p	6:25p
5:50p	6:02p	6:15p	6:22p	6:35p	6:45p	6:55p
6:35p	6:47p	7:00p	7:07p	7:20p	7:30p	7:40p
7:20p	7:32p	7:45p		8:00p	8:10p	8:20p G
8:05p	8:17p	8:30p		8:45p	8:55p	9:05p G
8:50p	9:02p	9:15p		9:30p	9:40p	9:50p G

WESTBOUND

To Sawgrass Mills Mall

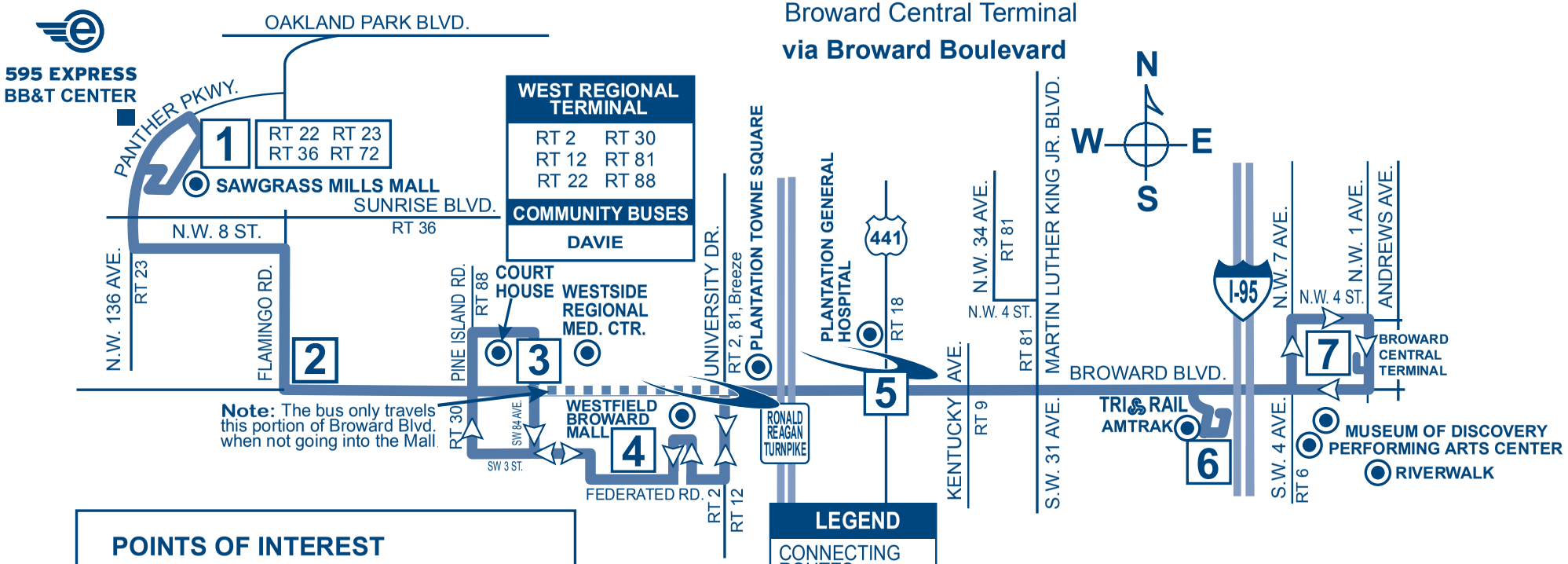
BROWARD CENTRAL TERMINAL	FT. LAUDERDALE TRI-RAIL STATION	BROWARD BLVD & US 441	WESTFIELD MALL	WEST REGIONAL TERMINAL	BROWARD BLVD & FLAMINGO RD	SAWGRASS MILLS MALL
7	**6**	**5**	**4**	**3**	**2**	**1**
8:10a	8:20a	8:30a		8:45a	8:54a	9:05a
8:40a	8:50a	9:00a		9:15a	9:24a	9:35a
9:05a	9:15a	9:25a	9:38a	9:45a	9:54a	10:05a
9:35a	9:45a	9:55a	10:08a	10:15a	10:24a	10:35a
10:05a	10:15a	10:25a	10:38a	10:45a	10:54a	11:05a
10:35a	10:45a	10:55a	11:08a	11:15a	11:24a	11:35a
11:05a	11:15a	11:25a	11:38a	11:45a	11:54a	12:05p
11:35a	11:45a	11:55a	12:08p	12:15p	12:24p	12:35p
12:05p	12:15p	12:25p	12:38p	12:45p	12:54p	1:05p
12:35p	12:45p	12:55p	1:08p	1:15p	1:24p	1:35p
1:05p	1:15p	1:25p	1:38p	1:45p	1:54p	2:05p
1:35p	1:45p	1:55p	2:08p	2:15p	2:24p	2:35p
2:05p	2:15p	2:25p	2:38p	2:45p	2:54p	3:05p
2:35p	2:45p	2:55p	3:08p	3:15p	3:24p	3:35p
3:05p	3:15p	3:25p	3:38p	3:45p	3:54p	4:05p
3:35p	3:45p	3:55p	4:08p	4:15p	4:24p	4:35p
4:05p	4:15p	4:25p	4:38p	4:45p	4:54p	5:05p
4:35p	4:45p	4:55p	5:08p	5:15p	5:24p	5:35p
5:05p	5:15p	5:25p	5:38p	5:45p	5:54p	6:05p G
5:35p	5:45p	5:55p	6:08p	6:15p	6:24p	6:35p
6:05p	6:15p	6:25p	6:38p	6:45p	6:54p	7:05p
6:35p	6:45p	6:55p	7:08p	7:15p	7:24p	7:35p G
7:05p	7:15p	7:25p		7:40p	7:49p	8:00p
7:50p	8:00p	8:10p		8:25p	8:34p	8:45p

NUMBERS IN BOXES REFER TO TIME POINTS ON MAP

Times with the letter “G” after them indicate bus returns to garage.

ROUTE 22

Sawgrass Mills Mall (Green Toad Entrance) to
Broward Central Terminal
via Broward Boulevard



POINTS OF INTEREST

- Westfield Broward Mall
- Plantation Towne Square
- Sawgrass Mills Mall
- Plantation General Hospital
- Westside Regional Medical Center
- Broward Center for the Performing Arts
- Museum of Discovery & Science
- Riverwalk Historical District
- AMTRAK / Tri-Rail
- West Regional Courthouse

LEGEND

CONNECTING ROUTES → RT #

0 MAIN ROUTE

TIMEPOINTS

The Breeze stop location

95 Express

COMMUNITY BUSES AT THE TERMINAL

City of Fort Lauderdale
Northwest Circulator
Downtown Commuter
Park & Ride
Las Olas Beaches

BROWARD CENTRAL TERMINAL

RT 1	RT 11	RT 30	RT 60
RT 6	RT 14	RT 31	RT 81
RT 9	RT 20	RT 40	
RT 10	RT 22	RT 50	
US 1 BREEZE			

For more details on our fares please visit our web site at Broward.org/BCT or call customer service: 954.357.8400.

Reading a Timetable - It's Easy

1. The map shows the exact bus route.
2. Major route intersections are called time points. Time points are shown with the symbol ☐.
3. The timetable lists major time points for bus route. Listed under time points are scheduled departure times.
4. Reading from left to right, indicates the time for each bus trip.
5. The bus picks up and drops off riders at all BCT bus stop signs along the route where there is a Broward County bus stop sign.
6. Arrive at the bus stop five minutes early. Buses operate as close to published timetables as traffic conditions allow.

Not paying your fare is a crime per Florida Statute 812.015. Violation constitutes a misdemeanor, punishable by jail time and/or a fine.

Information: 954.357.8400

Hearing-speech impaired/TTY: 954.357.8302

This publication can be made available in alternative formats upon request by contacting 954-357-8400 or TTY 954-357-8302.

This symbol is used on bus stop signs to indicate accessible bus stops.

BROWARD COUNTY FLORIDA
BROWARD COUNTY
BOARD OF COUNTY COMMISSIONERS
An equal opportunity employer and provider of services.

20,000 copies of this public document were promulgated at a gross cost of $870.00, or $.043 per copy to inform the public about the Transit Division's schedule and route information. 5/18

ROUTE 81

All Week

Schedule

Effective 5/6/18



Broward Central Terminal to West Regional Terminal

MyRide BROWARD.org
Real Time Bus Information
MyRide.Broward.org

BROWARD COUNTY Transit
954-357-8400
Broward.org/BCT

Route 81

Broward Central Terminal to
West Regional Terminal

BROWARD COUNTY TRANSIT

TRANSIT WATCH

WHEN IT COMES TO OUR SAFETY, WE CAN ALWAYS USE AN EXTRA PAIR OF EYES AND EARS. BE ALERT. CALL 954-357-LOOK (5665). TELL US.

MONDAY - FRIDAY

There are additional bus stops in between those listed.

EASTBOUND

To Broward Central Terminal

WEST REGIONAL TERMINAL	SUNSET STRIP & UNIVERSITY DR	SUNRISE BLVD & NW 56 AVE	NW 44 ST & INVERRARY BLVD	NW 35 ST & NW 50 AVE	LAUDERHILL MALL	BROWARD BLVD & NW 31 AVE	BROWARD CENTRAL TERMINAL
1	**2**	**3**	**4A**	**4B**	**5**	**6**	**7**
	5:10a	5:22a			5:51a	5:59a	6:12a
	5:30a	5:42a	6:00a		6:31a	6:41a	6:55a
5:45a	5:54a	6:06a	6:26a	6:37a	6:57a	7:15a	7:31a
6:15a	6:26a	6:38a	6:58a	7:11a	7:33a	7:50a	8:06a
6:45a	6:56a	7:11a	7:31a	7:45a	8:07a	8:24a	8:42a
7:20a	7:32a	7:49a	8:09a	8:23a	8:45a	8:58a	9:16a
7:55a	8:07a	8:23a	8:41a	8:54a	9:16a	9:28a	9:46a
8:30a	8:41a	8:53a	9:11a	9:24a	9:46a	9:58a	10:16a
9:05a	9:16a	9:28a	9:46a	9:59a	10:21a	10:33a	10:50a
9:40a	9:51a	10:03a	10:21a	10:34a	10:55a	11:06a	11:22a
10:15a	10:26a	10:38a	10:55a	11:07a	11:27a	11:38a	11:54a
10:40a	10:51a	11:03a	11:20a	11:32a	11:52a	12:03p	12:19p
11:15a	11:26a	11:38a	11:55a	12:07p	12:27p	12:38p	12:54p
11:50a	12:01p	12:13p	12:30p	12:42p	1:02p	1:13p	1:30p
12:25p	12:36p	12:48p	1:05p	1:17p	1:37p	1:48p	2:06p
1:00p	1:11p	1:23p	1:42p	1:54p	2:14p	2:25p	2:43p
1:35p	1:47p	1:59p	2:18p	2:30p	2:50p	3:01p	3:17p
2:10p	2:22p	2:34p	2:53p	3:05p	3:25p	3:38p	3:54p
2:40p	2:52p	3:05p	3:25p	3:37p	3:57p	4:10p	4:26p
3:15p	3:28p	3:42p	4:02p	4:14p	4:32p	4:45p	5:01p
3:50p	4:03p	4:17p	4:37p	4:49p	5:07p	5:20p	5:36p
4:25p	4:38p	4:52p	5:12p	5:24p	5:42p	5:55p	6:11p
5:05p	5:18p	5:32p	5:52p	6:04p	6:22p	6:31p	6:46p
5:40p	5:53p	6:07p	6:26p	6:39p	7:00p	7:09p	7:23p
6:15p	6:28p	6:42p	6:59p	7:12p	7:33p	7:43p	7:56p
6:45p	6:58p	7:12p	7:28p	7:38p	7:57p	8:07p	8:20p
7:25p	7:36p	7:47p	8:02p	8:12p	8:31p	8:41p	8:54pG
7:55p	8:06p	8:17p	8:32p		8:55p	9:05p	9:13p
8:20p	8:31p	8:42p		9:00p	9:24p	9:29p	9:39p
9:00p	9:11p	9:22p	9:37p		10:01p	10:10p	10:17p
9:25p	9:36p	9:47p		10:05p	10:29p	10:34p	10:44p
9:55p	10:05p	10:16p	10:31p		10:55p	11:05p	11:13pG
10:25p	10:35p	10:46p	11:01p	11:12p	11:31p	11:41p	11:54pG
11:00p	11:10p	11:21p	11:36p	11:47p	12:06aG		

WESTBOUND

To West Regional Terminal

BROWARD CENTRAL TERMINAL	BROWARD BLVD & NW 31 AVE	LAUDERHILL MALL	NW 35 ST & NW 50 AVE	NW 44 ST & INVERRARY BLVD	SUNRISE BLVD & NW 56 AVE	SUNSET STRIP & UNIVERSITY DR	WEST REGIONAL TERMINAL
7	**6**	**5**	**4B**	**4A**	**3**	**2**	**1**
		5:35a		5:53a	6:08a	6:19a	6:29a
		6:05a		6:24a	6:39a	6:50a	7:00a
6:00a	6:08a	6:22a	6:38a	6:47a	7:06a	7:19a	7:35a
6:30a	6:40a	6:53a	7:13a	7:24a	7:44a	8:01a	8:18a
7:10a	7:21a	7:37a	7:56a	8:05a	8:21a	8:36a	8:52a
7:45a	7:57a	8:11a	8:31a	8:40a	9:01a	9:13a	9:28a
8:20a	8:30a	8:46a	9:06a	9:16a	9:30a	9:43a	9:58a
8:55a	9:04a	9:16a	9:35a	9:43a	9:57a	10:08a	10:25a
9:30a	9:39a	9:51a	10:09a	10:16a	10:30a	10:41a	10:52a
10:00a	10:10a	10:24a	10:42a	10:50a	11:05a	11:17a	11:30a
10:35a	10:45a	10:59a	11:20a	11:30a	11:43a	11:56a	12:09p
11:05a	11:15a	11:30a	11:52a	12:03p	12:16p	12:30p	12:42p
11:40a	11:51a	12:06p	12:27p	12:39p	12:55p	1:06p	1:19p
12:15p	12:25p	12:41p	1:02p	1:11p	1:24p	1:34p	1:47p
12:45p	12:55p	1:11p	1:32p	1:42p	1:58p	2:10p	2:23p
1:15p	1:26p	1:42p	2:03p	2:13p	2:29p	2:41p	2:55p
1:50p	2:00p	2:17p	2:37p	2:47p	3:04p	3:16p	3:29p
2:25p	2:36p	2:53p	3:14p	3:25p	3:42p	3:54p	4:08p
3:00p	3:11p	3:29p	3:50p	4:02p	4:19p	4:32p	4:40p
3:35p	3:47p	4:05p	4:26p	4:38p	5:01p	5:13p	5:21p
4:10p	4:22p	4:39p	5:05p	5:17p	5:40p	5:52p	6:00p
4:40p	4:58p	5:14p	5:40p	5:52p	6:15p	6:26p	6:34p
5:20p	5:41p	6:03p	6:23p	6:34p	6:52p	7:03p	7:13p
5:55p	6:15p	6:34p	6:53p	7:04p	7:21p	7:31p	7:41p
6:25p	6:45p	7:03p	7:23p	7:34p	7:51p	8:00p	8:10p
7:05p	7:25p	7:40p	8:03p	8:12p	8:28p	8:38p	8:48p
7:40p	7:50p	8:05p	8:26p	8:35p	8:51p	9:01p	9:11p
8:10p	8:19p	8:32p	8:52p	9:01p	9:17p	9:27p	9:37p
8:40p	8:49p	9:02p	9:22p	9:31p	9:47p	9:57p	10:07p
9:20p	9:29p	9:45p	10:03p		10:17p	10:27p	10:36p
9:55p	10:04p	10:20p		10:38p	10:52p	11:02p	11:11pG
10:30p	10:39p	10:52p	11:12p	11:21p	11:37p	11:47p	11:57pG
11:05p	11:14p	11:27p	11:47p	11:56p	12:12a	12:22a	12:32aG

NUMBERS IN BOXES REFER TO TIME POINTS ON MAP

Times with the letter "G" before them indicate bus returns to garage. To ensure reliable and safe connections for our customers, all trips with the "W" note will NOT depart terminal until directed by either the terminal supervisor or radio.

SATURDAY

EASTBOUND

To Broward Central Terminal

WEST REGIONAL TERMINAL	SUNSET STRIP & UNIVERSITY DR	SUNRISE BLVD & NW 56 AVE	NW 44 ST & INVERRARY BLVD	NW 35 ST & NW 50 AVE	LAUDERHILL MALL	BROWARD BLVD & NW 31 AVE	BROWARD CENTRAL TERMINAL
1	**2**	**3**	**4A**	**4B**	**5**	**6**	**7**
	5:41a	5:50a	6:04a		6:28a	6:40a	6:50a
6:00a	6:09a	6:19a		6:35a	6:57a	7:07a	7:18a
6:30a	6:39a	6:49a	7:03a		7:28a	7:37a	7:51a
7:00a	7:09a	7:20a		7:35a	7:58a	8:06a	8:19a
7:30a	7:39a	7:50a	8:03a		8:28a	8:37a	8:51a
8:00a	8:10a	8:21a		8:36a	8:58a	9:07a	9:22a
8:30a	8:39a	8:50a	9:03a		9:28a	9:39a	9:53a
9:05a	9:13a	9:25a		9:44a	10:06a	10:15a	10:30a
9:40a	9:49a	10:00a	10:14a		10:41a	10:52a	11:05a
10:15a	10:24a	10:36a		10:50a	11:12a	11:21a	11:35a
10:50a	11:00a	11:12a	11:25a		11:49a	12:02p	12:17p
11:25a	11:35a	11:46a		12:02p	12:22p	12:30p	12:46p
12:00p	12:10p	12:21p	12:32p		12:57p	1:05p	1:20p
12:35p	12:45p	12:56p		1:14p	1:34p	1:47p	2:01p
1:10p	1:21p	1:33p	1:46p		2:13p	2:23p	2:32p
1:45p	1:56p	2:10p		2:25p	2:45p	2:58p	3:12p
2:20p	2:31p	2:42p	2:56p		3:22p	3:31p	3:44p
2:55p	3:06p	3:18p		3:33p	3:57p	4:06p	4:20p
3:30p	3:41p	3:54p	4:06p		4:29p	4:41p	4:55p
4:05p	4:15p	4:26p		4:41p	5:02p	5:14p	5:28p
4:40p	4:52p	5:05p	5:17p		5:40p	5:48p	6:06p
5:15p	5:26p	5:38p		5:55p	6:14p	6:25p	6:38p
5:50p	6:01p	6:10p	6:22p		6:50p	7:01p	7:17p
6:25p	6:35p	6:46p		7:01p	7:22p	7:33p	7:46p
7:00p	7:09p	7:21p	7:35p		7:59p	8:09p	8:23p
7:35p	7:45p	7:56p		8:11p	8:32p	8:43p	8:56p
8:10p	8:19p	8:30p	8:42p		9:05p	9:15p	9:29p
8:45p	8:55p	9:06p		9:21p	9:42p	9:53p	10:06pG
9:20p	9:29p	9:40p	9:52p		10:15p	10:25p	10:39p
9:55p	10:06p	10:17p	10:30p	10:43p	11:03pG		
10:45p	10:56p	11:07p	11:20p	11:33p	11:53pG		

WESTBOUND

West Regional Terminal

BROWARD CENTRAL TERMINAL	BROWARD BLVD & NW 31 AVE	LAUDERHILL MALL	NW 35 ST & NW 50 AVE	NW 44 ST & INVERRARY BLVD	SUNRISE BLVD & NW 56 AVE	SUNSET STRIP & UNIVERSITY DR	WEST REGIONAL TERMINAL
7	**6**	**5**	**4B**	**4A**	**3**	**2**	**1**
		5:55a		6:12a	6:27a	6:37a	6:47a
6:00a	6:08a	6:23a	6:41a		6:53a	7:01a	7:11a
6:30a	6:37a	6:53a		7:10a	7:25a	7:36a	7:44a
7:00a	7:06a	7:22a	7:37a		7:54a	8:05a	8:15a
7:30a	7:38a	7:53a		8:11a	8:27a	8:39a	8:53a
8:00a	8:08a	8:23a	8:41a		8:55a	9:06a	9:17a
8:30a	8:38a	8:51a		9:09a	9:25a	9:36a	9:51a
9:05a	9:13a	9:28a	9:46a		10:00a	10:12a	10:23a
9:40a	9:49a	10:02a		10:20a	10:36a	10:47a	10:59a
10:15a	10:22a	10:37a	10:56a		11:09a	11:20a	11:35a
10:50a	10:58a	11:14a		11:41a	11:57a	12:02p	12:16p
11:25a	11:36a	11:53a	12:14p		12:25p	12:39p	12:50p
12:00p	12:08p	12:24p		12:46p	12:59p	1:13p	1:27p
12:35p	12:45p	12:59p	1:17p		1:33p	1:44p	1:55p
1:10p	1:20p	1:35p		1:56p	2:09p	2:23p	2:36p
1:45p	1:53p	2:08p	2:26p		2:40p	2:54p	3:06p
2:20p	2:30p	2:44p		3:05p	3:25p	3:35p	3:46p
2:55p	3:04p	3:19p	3:40p		3:53p	4:04p	4:15p
3:30p	3:39p	3:53p		4:14p	4:33p	4:45p	4:56p
4:05p	4:15p	4:27p	4:49p		5:02p	5:13p	5:24p
4:40p	4:48p	5:05p		5:26p	5:40p	5:47p	6:02p
5:15p	5:25p	5:37p	5:59p		6:12p	6:24p	6:30p
5:50p	5:59p	6:14p		6:36p	6:57p	7:03p	7:12p
6:25p	6:33p	6:47p	7:07p		7:20p	7:31p	7:43p
7:00p	7:11p	7:26p		7:48p	8:04p	8:13p	8:23p
7:35p	7:46p	7:59p	8:16p		8:31p	8:42p	8:54p
8:10p	8:17p	8:33p		8:55p	9:08p	9:17p	9:29p
8:45p	8:56p	9:09p	9:28p		9:43p	9:53p	10:01pG
9:20p	9:28p	9:41p		10:03p	10:16p	10:25p	10:37p
9:55p	10:04p	10:20p	10:38p	10:47p	11:02p	11:12pG	
10:45p	10:54p	11:10p	11:28p	11:37p	11:52p	12:02aG	

SUNDAY

EASTBOUND

To Broward Central Terminal

1	**2**	**3**	**4A**	**4B**	**5**	**6**	**7**
8:00a	8:09a	8:20a	8:34a		8:58a	9:08a	9:20a
8:45a	8:55a	9:06a		9:23a	9:43a	9:54a	10:07a
9:30a	9:38a	9:51a	10:04a		10:27a	10:40a	10:51a
10:15a	10:24a	10:33a		10:51a	11:12a	11:21a	11:37a
11:00a	11:08a	11:20a	11:32a		11:57a	12:08p	12:20p
11:45a	11:56a	12:06p		12:23p	12:43p	12:54p	1:06p
12:30p	12:39p	12:50p	1:02p		1:28p	1:37p	1:52p
1:15p	1:24p	1:34p		1:48p	2:13p	2:22p	2:37p
2:00p	2:10p	2:21p	2:33p		2:59p	3:08p	3:23p
2:45p	2:55p	3:07p		3:23p	3:42p	3:53p	4:05p
3:30p	3:41p	3:52p	4:04p		4:29p	4:39p	4:52p
4:15p	4:24p	4:37p		4:53p	5:13p	5:22p	5:37p
5:00p	5:11p	5:23p	5:35p		5:59p	6:10p	6:21p
5:45p	5:57p	6:07p		6:23p	6:44p	6:55p	7:06p
6:30p	6:39p	6:53p	7:05p		7:28p	7:39p	7:51p
7:15p	7:27p	7:37p		7:53p	8:14pG		
8:00p	8:12p	8:24p	8:36p	8:48p	9:08pG		

WESTBOUND

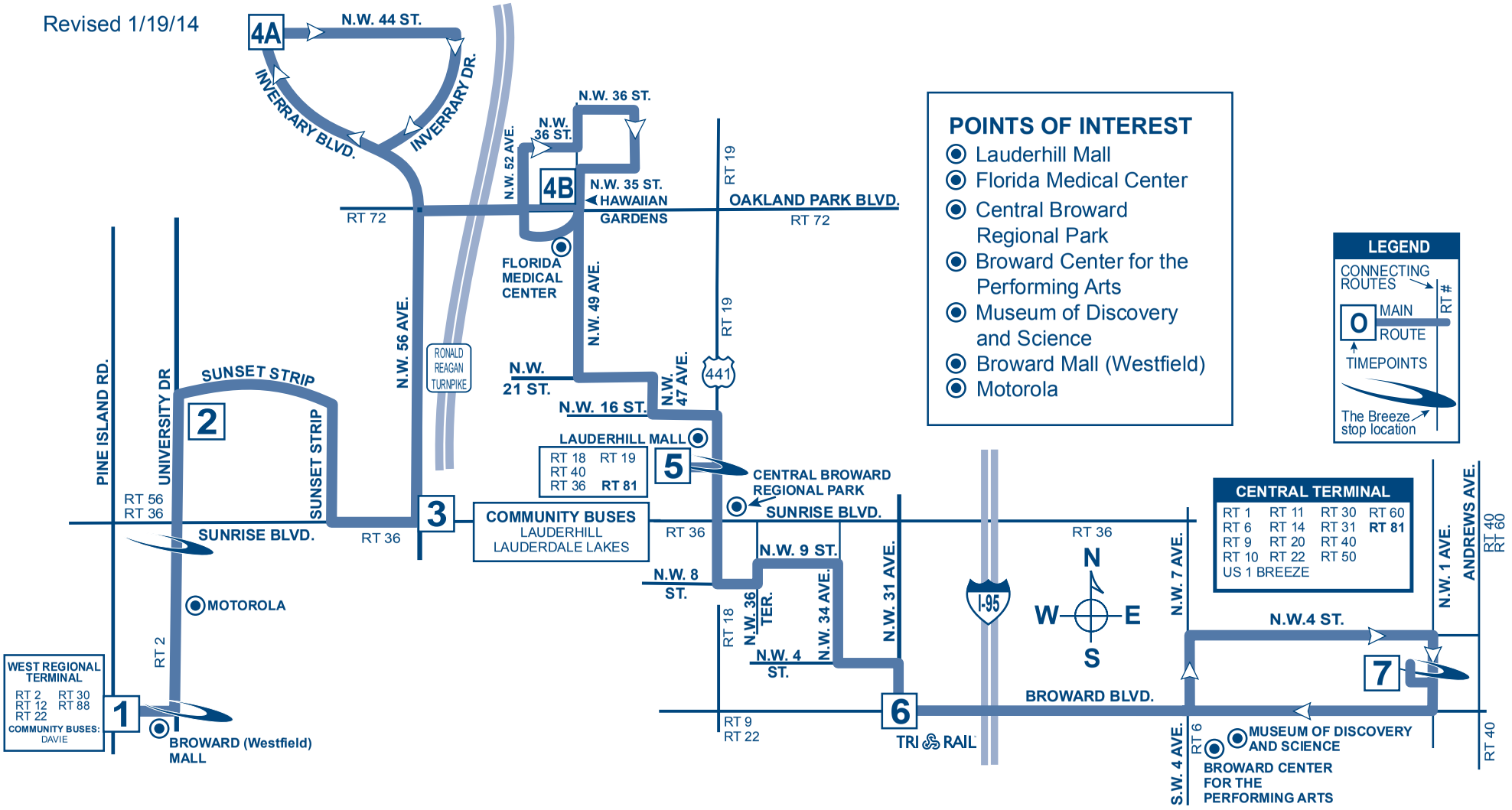
West Regional Terminal

7	**6**	**5**	**4B**	**4A**	**3**	**2**	**1**
8:00a	8:07a	8:23a		8:42a	8:55a	9:08a	9:17a
8:45a	8:52a	9:07a	9:25a		9:40a	9:48a	9:59a
9:30a	9:37a	9:53a		10:12a	10:25a	10:36a	10:47a
10:15a	10:23a	10:37a	10:53a		11:09a	11:22a	11:33a
11:00a	11:07a	11:21a		11:39a	11:52a	12:05p	12:14p
11:45a	11:52a	12:07p	12:24p		12:39p	12:49p	1:00p
12:30p	12:38p	12:52p		1:12p	1:26p	1:37p	1:49p
1:15p	1:22p	1:38p	1:58p		2:12p	2:22p	2:36p
2:00p	2:08p	2:22p		2:42p	2:56p	3:07p	3:19p
2:45p	2:54p	3:08p	3:26p		3:40p	3:51p	4:04p
3:30p	3:38p	3:52p		4:12p	4:26p	4:37p	4:49p
4:15p	4:24p	4:38p	4:56p		5:10p	5:21p	5:34p
5:00p	5:08p	5:22p		5:42p	5:56p	6:07p	6:19p
5:45p	5:53p	6:07p	6:29p		6:45p	6:53p	7:03p
6:30p	6:38p	6:52p		7:12p	7:26p	7:37p	7:49p
7:15p	7:23p	7:37p	7:59p		8:15p	8:23pG	
8:00p	8:10p	8:25p	8:43p	8:52p	9:06p	9:15pG	

ROUTE 81

West Regional Terminal to
Broward Central Terminal

Revised 1/19/14



954-TROLLEY
www.suntrolley.com

- NW Community Link
- Scheduled Stop
- Train Tracks
- Public Parking
- Fort Lauderdale Tri-Rail Station & Free Park-n-Ride Lot
- Neighborhood Link
- Downtown Link Connection
- Broward County Transit Central Terminal Connecting to: 1, 6, 9, 10, 11, 14, 20, 22, 30, 31, 40, 50, 60, 81, and US1 Breeze

SUN TROLLEY NW COMMUNITY LINK TIMETABLE MONDAY THROUGH FRIDAY

ALL DAY SERVICE

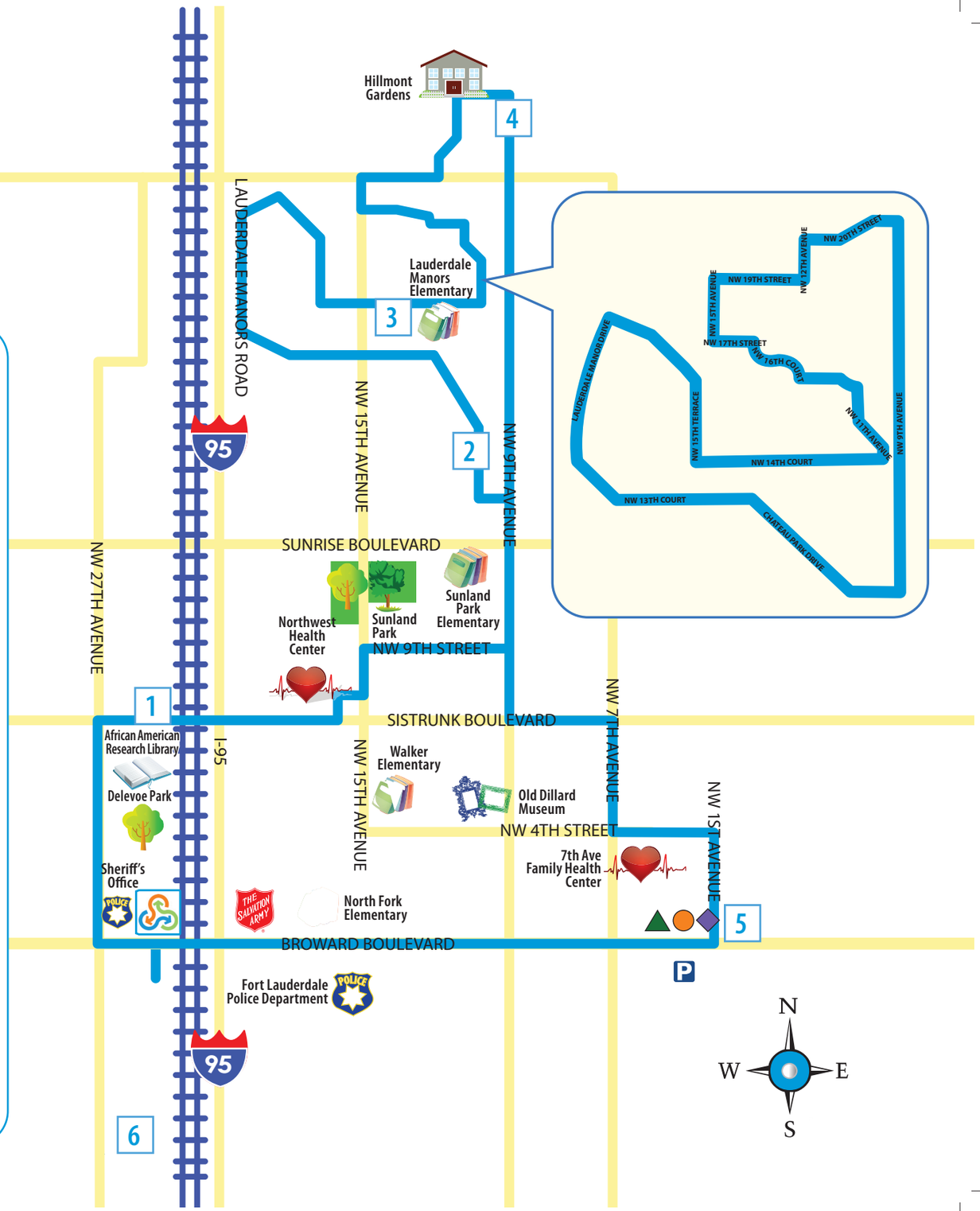
North Train Arrives	South Train Arrives	Powerline Rd./ Sunrise Blvd.	African American Research Library	Powerline Rd./ Sunrise Blvd.	Lauderdale Manors Elementary	Hillmont Gardens	Powerline Rd./ Sunrise Blvd.	Broward Central Bus Terminal	Broward Central Bus Terminal	Free Park-n-Ride Lot	Powerline Rd./ Sunrise Blvd.	North Train Departs	South Train Departs
		1	2	3	4	2	5	5	6				
A.M.													
		+	+	+	6:30	6:35	6:40	6:50	6:50	+	7:00	7:05 / 7:25	7:07
7:05	6:47 / 7:07	7:10	7:16	7:30	7:38	7:46	7:54	8:06	8:10	+	8:18	8:35	8:27
7:45 / 8:05	7:47	8:20	8:26	8:40	8:50	9:00	9:08	9:20	9:24	+	9:36	10:08	10:09
9:05	9:07	9:38	9:44	9:58	10:08	10:18	10:26	10:38	10:42	+	10:54	11:08	11:09
10:08	10:09	10:58	11:04	11:18	11:28	11:38	11:46	11:58	12:02	+	12:14	1:08	1:09
P.M.													
12:08	12:09	12:16	12:22	12:36	12:46	12:56	1:04	1:16	1:20	+	1:32	2:08	2:09
1:08	1:09	1:34	1:40	1:54	2:04	2:14	2:22	2:34	2:38	2:48	2:50	3:08	3:09
2:08	2:09	2:50	2:56	3:10	3:20	3:30	3:38	3:50	3:54	4:04	4:06	4:38	4:47
4:08	3:59	4:10	4:16	4:30	4:40	4:50	4:58	5:10	5:22	5:32	5:34	5:38 / 6:08	5:37/6:07
5:08	5:17	5:34	5:40	5:54	6:04	6:14	6:22	6:34	6:38	6:46	6:48	7:20	7:07
6:35	6:37	6:48	6:54	7:00	+	+	+	+	+	+	+	+	

PEAK SERVICE

North Train Arrives	South Train Arrives	Powerline Rd./ Sunrise Blvd.	Free Park-n-Ride Lot	Broward Central Bus Terminal	Broward Central Bus Terminal	Hillmont Gardens	Lauderdale Manors Elementary	Powerline Rd./ Sunrise Blvd.	African American Research Library	Powerline Rd./ Sunrise Blvd.	North Train Departs	South Train Departs
			6	5	5	4	3	2	1			
A.M.												
		+	+	+	+	7:00	7:08	7:16	7:30	7:38	7:45 S	7:47 N
7:25 S	7:07 N	7:38	7:40	7:48	7:50	8:06	8:14	8:22	8:36	8:44	9:05 S	9:07 N
7:45 / 8:05	7:47	8:20	8:26	8:40	8:50	9:00	9:08	9:20	9:24	9:36	10:08	10:09
8:35 S	8:27 N	8:44	8:46	8:54	8:56	9:12	9:20	9:28	9:42	9:50	10:08 S	10:09 N
9:05 S	9:07 N	9:50	9:52	10:00	10:02	10:18	10:26	10:34	10:48	10:54	11:08 S	11:09 N
10:08 S	10:09 N	10:54	+	11:00	11:02	11:18	11:26	11:30	+	+		
P.M.												
		+	+	+	3:20	3:36	3:44	3:52	4:06	4:14	4:38 S	4:47 N
4:08 S	3:59 N	4:14	+	4:24	4:26	4:42	4:50	4:58	5:12	5:20	5:38 S	5:37 N
5:08 S	5:17 N	5:22	+	5:32	5:34	5:50	5:58	6:06	6:20	6:28	6:35 S	6:37 N
6:08 S	6:07 N	6:28	+	6:38	6:42	6:54	7:02	7:10	7:20	+		

NOTE: *All trolleys are red and yellow, the colors depicted here are just for mapping purposes.*

Map updated 2/20/17



954-TROLLEY
www.suntrolley.com

- Neighborhood Link
- # Scheduled Stop
- Train Tracks
- P Public Parking
- Fort Lauderdale Tri-Rail Station & Free Park-n-Ride Lot
- NW Community Link
- Downtown Link Connection
- Broward County Transit Central Terminal Connecting to: 1, 6, 9, 10, 11, 14, 20, 22, 30, 31, 40, 50, 60, 81, and US1 Breeze

Download the Free Sun Trolley Tracker App

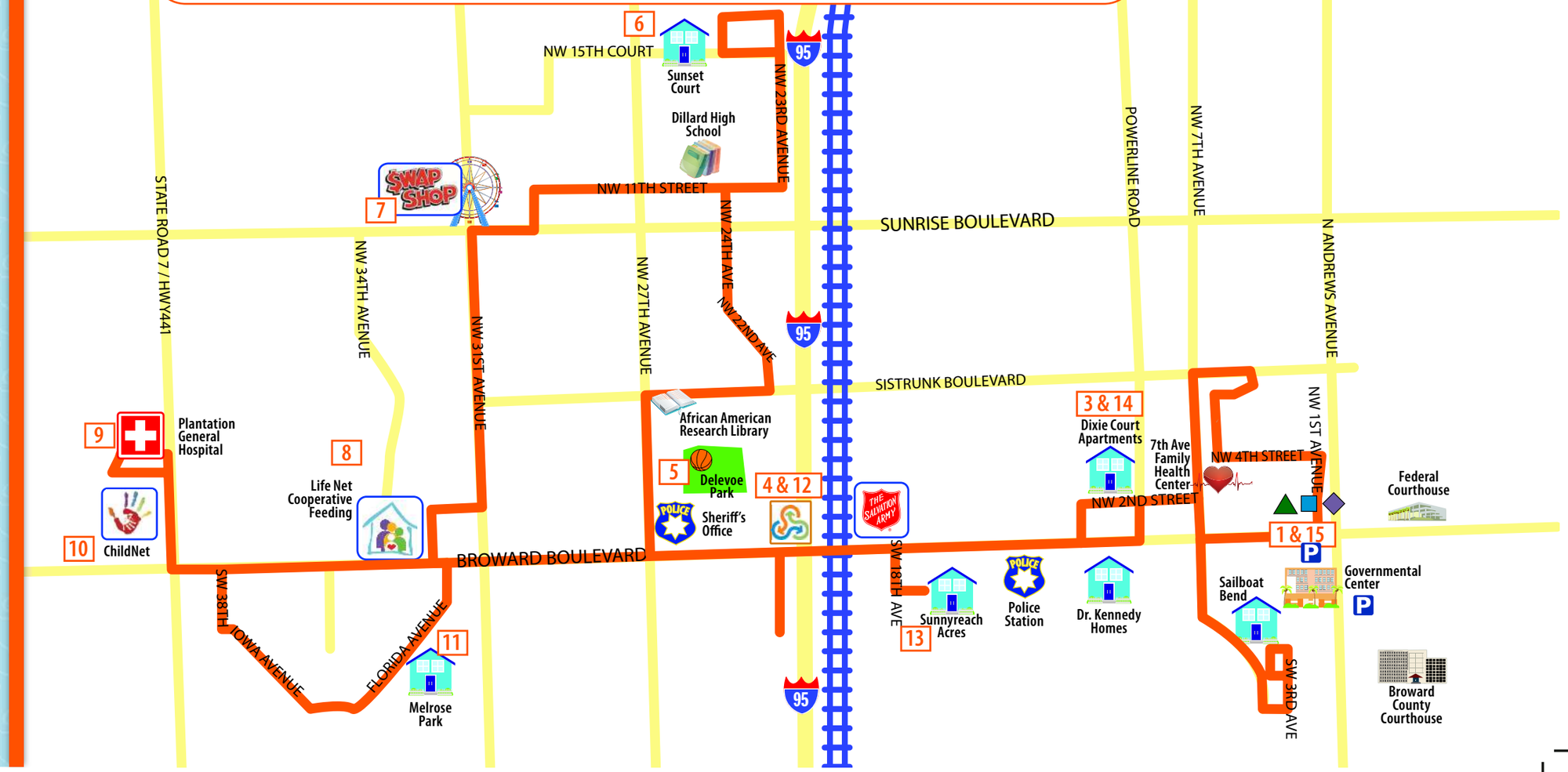
*Map not to scale.

NOTE: *All trolleys are red and yellow, the colors depicted here are just for mapping purposes.*

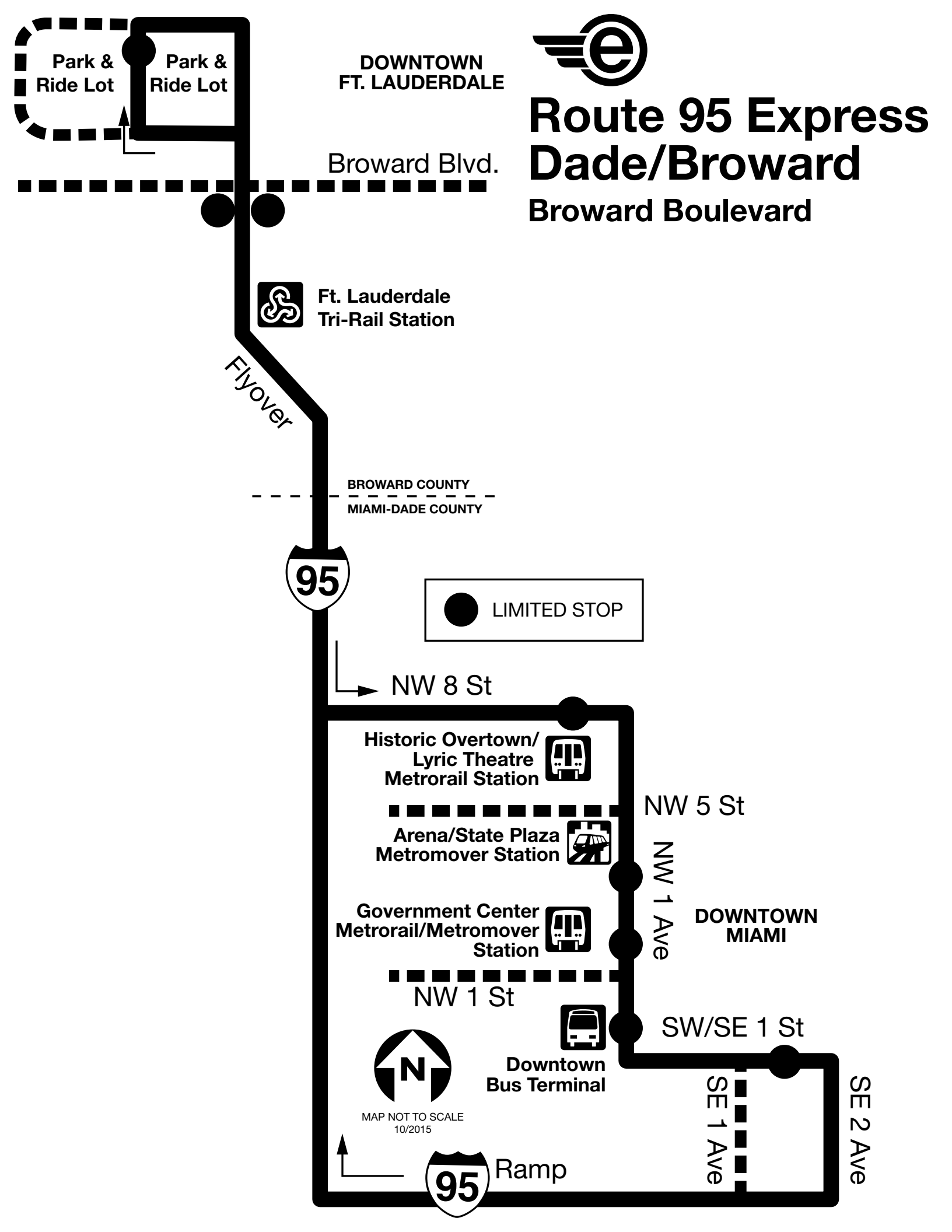
TMA SUN TROLLEY NEIGHBORHOOD LINK TIMETABLE

Mondays thru Fridays

Bus Number	Broward Central Terminal	Sailboat Bend	Save-A-Lot	Dixie Court Apartments	Tri-Rail Station	African-American Research Library & Cultural Center	Suncrest Court	Swap Shop	Life Net/Cooperative Feeding	West Broward Shopping Center	Plantation General Hospital	ChildNet	Melrose Park	Tri-Rail Station	Sunnyreach Acres	Dixie Court Apartments	Save-A-Lot	Broward Central Terminal
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Bus 1	815a	825a	835a	839a	846a	853a	859a	906a	909a	914a	916a	920a	925a	932a	935a	940a	943a	945a
Bus 2	900a	910a	920a	924a	931a	938a	944a	951a	954a	959a	1001a	1005a	1010a	1017a	1020a	1025a	1028a	1030a
Bus 1	950a	1000a	1010a	1014a	1021a	1028a	1034a	1041a	1044a	1049a	1051a	1055a	1100a	1107a	1110a	1115a	1118a	1120a
Bus 2	1035a	1045a	1055a	1059a	1106a	1113a	1119a	1126a	1129a	1134a	1136a	1140a	1145a	1152a	1155a	1200p	1203p	1205p
Bus 1	1125a	1135a	1145a	1149a	1156a	1203p	1209p	1216p	1219p	1224p	1226p	1230p	1235p	1242p	1245p	1250p	1253p	1255p
Bus 2	1210p	1220p	1230p	1234p	1241p	1248p	1254p	101p	104p	109p	111p	115p	120p	127p	130p	135p	138p	140p
Bus 1	100p	110p	120p	124p	131p	138p	144p	151p	154p	159p	201p	205p	210p	217p	220p	225p	228p	230p



N
W E
S


Park &
Ride Lot
Park &
Ride Lot
DOWNTOWN
FT. LAUDERDALE
Route 95 Express
Dade/Broward
Broward Blvd.
Broward Boulevard
Ft. Lauderdale
Tri-Rail Station
Flyover
BROWARD COUNTY
MIAMI-DADE COUNTY
95
LIMITED STOP
NW 8 St
Historic Overtown/
Lyric Theatre
Metrorail Station
NW 5 St
Arena/State Plaza
Metromover Station
NW 1 Ave
Government Center
Metrorail/Metromover
Station
DOWNTOWN
MIAMI
NW 1 St
SW/SE 1 St
Downtown
Bus Terminal
SE 1 Ave
SE 2 Ave
N
MAP NOT TO SCALE
10/2015
95
Ramp

The Amtrak System



AMTRAK®

See where the train can take you℠

- Amtrak® Train Routes
- Thruway Connecting Services
 Seasonal
 Depending on route, connecting services may be provided by train, bus, van, taxi or ferry. Separate fares and reservations may be required on other carriers.
- Service Suspended

For information and reservations, call 1-800-USA-RAIL or visit Amtrak.com

Due to space limitations, not all stops are shown. Services are subject to change. Amtrak System Map effective March 2017. Amtrak and see where the train can take you are registered service marks of the National Railroad Passenger Corporation.

rev. 3/2017

TRI RAIL™

SYSTEM MAP

TRI RAIL™

Tri-Rail Station

Free Tri-Rail Shuttle @Station

Direct Shuttle Route to Airport

Miami-Dade Metrorail

Metrorail Station

Transfer Station

Metrorail Orange Line

Metrorail Green Line

International Airport

Access to Amtrak

PALM BEACH

BROWARD

MIAMI - DADE

Mangonia Park
45th St.

West Palm Beach
Banyan Blvd. & Tamarind Av.

Palm Beach
International Airport

Lake Worth
Lake Worth Rd.

Boynton Beach
Gateway Blvd.

Delray Beach
Congress Av.

Boca Raton
Yamato Rd.

Deerfield Beach
Hillsboro Blvd.

Pompano Beach
Sample Rd. & NW 8th Av

Cypress Creek
Cypress Creek Rd. &
Powerline Rd.

Ft. Lauderdale
Broward Blvd.

Fort Lauderdale-Hollywood
International Airport

Ft. Lauderdale-Hollywood
Int' Airport at Dania Beach
Griffin Rd.

Sheridan Street

Hollywood
Hollywood Blvd.

Golden Glades

Metrorail
Transfer
NW 79th St.

Opa-Locka
Ali Baba Ave.

North-
side

Palmetto

Okeechobee

Hialeah

Hialeah
Market
SE 12th St

Dr. Martin Luther King, Jr.

Brownsville

Earlington Hts.

Allapattah

Santa Clara

Civic Center

Culmer

Overtown/Lyric Theatre

Government Center

Brickell

Vizcaya

Coconut Grove

Douglas Road

University

South Miami

Dadeland North

Dadeland South

Miami
Airport

Miami International
Airport

Miami
Intermodal
Center

N

FORT LAUDERDALE STATION FL 1 SHUTTLE BUS MAP

11 14 31
TO TRI-RAIL FORT LAUDERDALE STATION
BROWARD CENTRAL TERMINAL
4
CITY HALL
20 50
FEDERAL COURT HOUSE
NE 2ND ST.
BROWARD FINANCIAL CENTER
60
40
BROWARD BLVD.
T
1
6 9 22 81
1 11
10
SW 3RD AVE.
SW 2ND AVE.
STRANAHAN PARK
SE 1ST ST.
ONE FINANCIAL PLAZA
MUS. OF SCIENCE/ IMAX
HIMMARSHEE DISTRICT
P
COUNTY GOVERNMENTAL CENTER
11
30
40
COUNTY LIBRARY
SE 2ND ST.
PERFORMING ARTS CENTER
SUN
RIVERFRONT PLAZA
SW 1ST AVE.
ANDREWS AVE.
3
NE 1ST AVE.
NE 2ND AVE.
NE 3RD AVE.
FEDERAL HWY.
N
FORT LAUDERDALE ART MUSEUM
RIVERFRONT PLAZA
DOWNTOWN DEVELOPMENT AUTHORITY
FLORIDA ATLANTIC UNIV.
BROWARD COLLEGE
LAS OLAS DISTRICT
LAS OLAS BLVD.
HUZIENGA PLAZA
WATER TAXI
RIVERWALK
New River
RIVERWALK
COUNTY COURT HOUSE
SW 5TH ST.
SW 6TH ST.
2
SCHOOL BOARD OF BROWARD COUNTY
30
40

7 ROUTE TIMED MAP LOCATIONS
11 COUNTY BUS ROUTE
T COUNTY BUS TRANSFER POINT

FREE FDOT PARK & RIDE LOT
INSET
BROWARD BLVD.
TRI-RAIL FORT LAUDERDALE STATION
95
ANDREWS AVE.
SE 3RD AVE.
SE 6TH AVE.

*TRANSFERS TO BROWARD COUNTY TRANSIT AVAILABLE AT BROWARD CENTRAL TERMINAL

FORT LAUDERDALE STATION

FL-2 SHUTTLE BUS MAP

N

TRI-RAIL FORT LAUDERDALE STATION

SW 9TH AVE.

SW 4TH AVE.

6

ANDREWS AVE.

40

BRZ

SE 14TH ST.

1

595e

P

SE 1ST AVE.

HEART CENTER

TRAUMA CENTER

SE 16TH ST.

BROWARD GENERAL MEDICAL CENTER

SE 3RD AVE.

BROWARD COUNTY HOSPITAL BLDG. 9 & PHYSICIAN BLDG.

BROWARD COUNTY HOSPITAL HEADQUARTERS

1

FEDERAL HWY.

ART INSTITUTE OF FORT LAUDERDALE

3

95

SE 17TH ST.

T

2

SE 17TH ST.

595e

1

40

BRZ

T

SE 17TH ST.

595e

BROWARD CONVENTION CTR.

1

BRZ

EISENHOWER BLVD.

DAVIS PARK

CROISSANT ELEM.

MARITIME TRAINING CENTER

SOUTHLAND SHOPPING CTR.

LAUDERDALE MEMORIAL PARK

HOTELS

STATE ROAD 84

T

1

6

6

6

HEALTH DEPT.

NATIONAL ARMORY

3	ROUTE TIMED MAP LOCATIONS
40	COUNTY BUS ROUTE
T	COUNTY BUS TRANSFER POINT

FORT LAUDERDALE STATION FL 3 SHUTTLE BUS MAP

TRI-RAIL STATION

BROWARD CENTRAL TERMINAL

60 50 10 N

40 50 10 1

SW 7TH AVE. SW 5TH AVE.

MUS. OF SCIENCE/ IMAX

HIMMARSHEE DISTRICT

BROWARD BLVD.

COUNTY LIBRARY

SE 2ND ST.

SE 8TH AVE.

SUN

PERFORMING ARTS CENTER

OLD FORT LAUD. VILLAGE

FORT LAUDERDALE DOWNTOWN

FORT LAUDERDALE ART MUSEUM

FLORIDA ATLANTIC UNIV.

BROWARD COLLEGE

RIVERFRONT PLAZA

LAS OLAS DISTRICT

11 SUN

LAS OLAS BLVD.

Riverwalk

STRANAHAN HOUSE

WATER TAXI

INSET

TO DOWN-TOWN

ANDREWS AVE.

SE 7TH ST.

TRI-RAIL FORT LAUDERDALE STATION

95

30

SE 3RD AVE.

FEDERAL HWY.

DAVIE BLVD.

BROWARD GENERAL MEDICAL CENTER

SE 17TH ST.

ROUTE TIMED MAP LOCATIONS

COUNTY BUS ROUTE

COUNTY BUS TRANSFER POINT

ADDITIONAL TRANSFERS TO BROWARD COUNTY TRANSIT AVAILABLE AT BROWARD CENTRAL TERMINAL